REPORT RESUMES

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SUMMARY REPORT ON THE LAKE OKOBOJI AUDIOVISUAL LEADERSHIP CONFERENCE (10TH, MILFORD, IOWA, AUGUST 16-20, 1964).
IOWA UNIV., IOWA CITY
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DESCRIPTORS- *AUDIOVISUAL AIDS, *INSTRUCTIONAL MEDIA, *EDUCATIONAL RESOURCES, *EDUCATIONAL FACILITIES, SKILL DEVELOPMENT, BEHAVIOR CHANGE, STIMULUS BEHAVIOR, REINFORCEMENT, GROUP INSTRUCTION, INDIVIDUAL INSTRUCTION, *FACILITY GUIDELINES, LEARNING,

THIS IS A SERIES OF WORKING PAPERS AIMED AT AUDIOVISUAL SPECIALISTS. THE KEYNOTE ADDRESS, COMMITTEE REPORTS, AND CONFERENCE SUMMARY CONCERN LEARNING SPACE AND EDUCATIONAL MEDIA IN INSTRUCTIONAL PROGRAMS. REPORTS DEAL WITH A BEHAVIORAL ANALYSIS APPROACH TO CURRICULUM AND SPACE CONSIDERATIONS, SOURCES OF INFORMATION AND RESEARCH ON LEARNING SPACE, LEARNING SPACE FOR INSTRUCTIONAL RESOURCES AND FOR INDIVIDUAL AND SMALL AND LARGE GROUP LEARNING, RENOVATION AND ADAPTATION OF FACILITIES, AND THE EDUCATORS' ROLE IN PROMOTING ACCEPTANCE OF NEW CONCEPTS. A BRIEF BIBLIOGRAPHY OF RELATED BOOKS, PAMPHLETS, AND PERIODICALS IS APPENDED, AS WELL AS VARIOUS DELEGATES' STATEMENTS ABOUT THE PROBLEMS OF THEIR FIELD. (JM)

~~Appendix "C"~~

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Summary Report

10th ANNUAL LAKE OKOBOJI

Audiovisual Leadership Conference

1964

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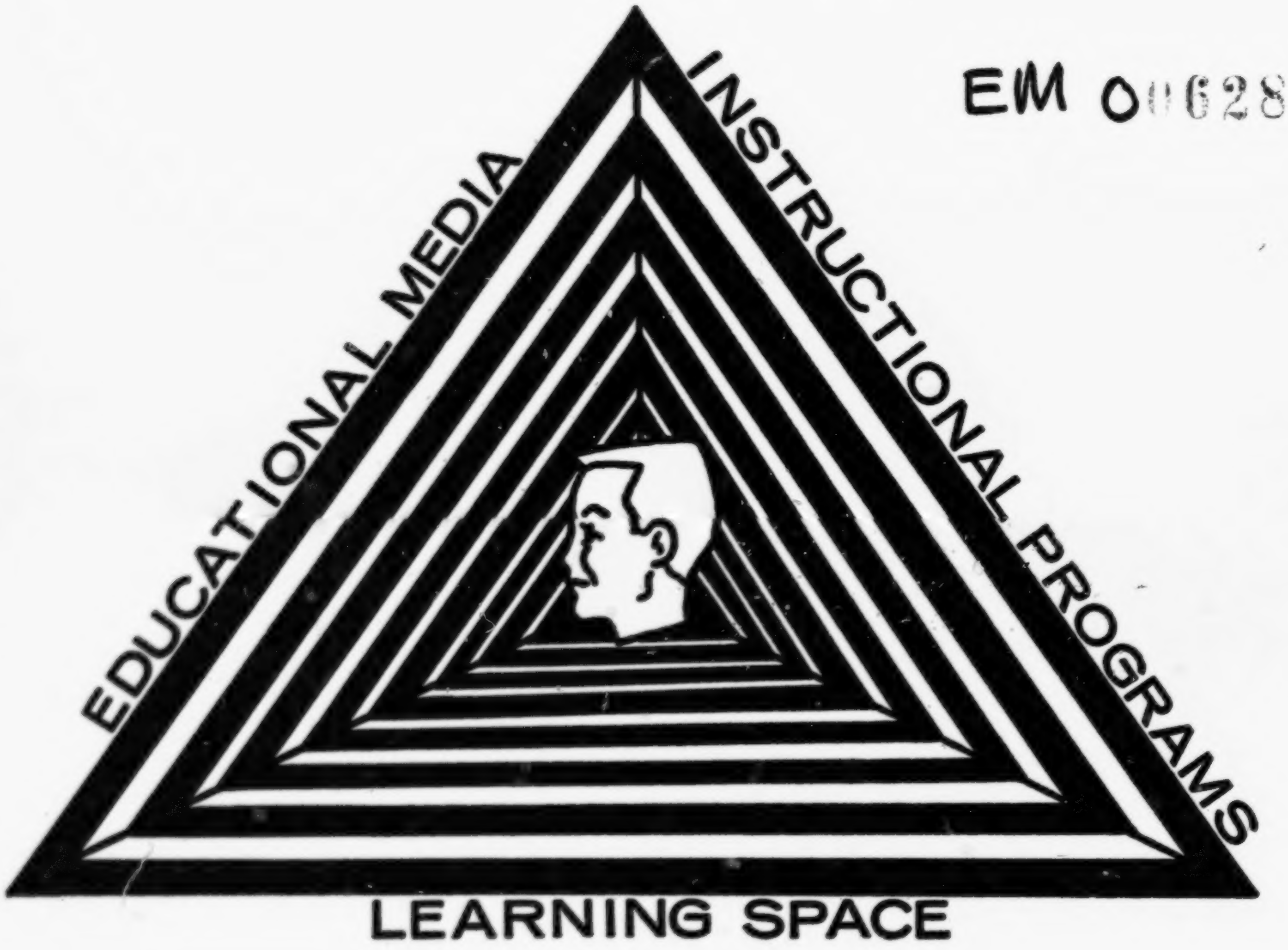
EDUCATIONAL MEDIA
INSTRUCTIONAL PROGRAMS
LEARNING SPACE

Sponsored by

Department of Audiovisual Instruction, NEA

and

The University of Iowa

SUMMARY REPORT

of the

TENTH LAKE OKOBOJI AUDIOVISUAL LEADERSHIP CONFERENCE

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Iowa Lakeside Laboratory
Lake Okoboji
Milford, Iowa

August 16-20, 1964

Sponsored by
State University of Iowa
Division of Extension
and University Services
Iowa City, Iowa

and the

Department of Audiovisual Instruction
National Education Association
Washington, D. C.

Appreciation is extended to Teaching Film Custodians, Inc., for partial support by providing funds earned through the distribution of films furnished by member companies of the Motion Picture Association, Inc.

* * * * *

NOTE: This summary report of the Tenth Annual Lake Okoboji Audiovisual Leadership Conference should be considered as a series of working papers and should be so listed if reproduced in any form.

It should be noted that the papers were prepared after only a few days of deliberation. They were prepared by separate groups with no effort made to polish them or make all of the final reports a cohesive whole. Thus the committees emphasized that there are limitations in the reports in the form of possible omissions, duplications and contradictions. This condition is accepted in light of the fact that the separate groups were more concerned about personal values of exploring the problems associated with the theme of the conference than they were in publishing a final report. This report, therefore, should be regarded as an incomplete outline of the conference proceedings and discussions and nothing more.

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FOREWORD

It was my great honor to be asked to sound the gavel closing the 1964 Lake Okoboji Audiovisual Leadership Conference. The gavel also sounded the close of a decade of Okoboji Conferences, the first having been held in 1955. My only hope is that these ten conferences have, in some way, improved the use of educational media in the schools of this country, and made the media specialists more aware of some major problems which we face.

Prior to the 1964 Okoboji Conference, the Planning Committee thought it would be wise to review and analyze the past nine conferences, in order that we might, to some extent, determine the real values of this type of meeting. A committee on "Future Okoboji Conferences" was appointed to thoroughly study the future values of this meeting and make recommendations. One of these recommendations was that a fourth category of delegates be invited to future conferences, to be composed of representative graduate students in the educational media field. This is, of course, in keeping with the original purpose of Okoboji, that young leaders of tomorrow, should be included. A report of this committee is included in this Summary Report. To give depth to the study of future conferences, the co-chairmen of all previous nine conferences were invited to make a fifteen minute presentation describing the topic of the specific year, and pointing out some of the long range results. Four of the past Okoboji reports were given in person by former co-chairmen, and five reports were presented on tape.

The theme for the 1964 conference of "Learning Space and Educational Media in Instructional Programs" was ably keynoted by Dr. Israel Goldiamond, Executive Director, Institute for Behavioral Research, Silver Spring, Maryland. Dr. Goldiamond's psychological background of learning approach gave the delegates the inspiration to vigorously approach the discussion of the topic. Learning Space specialists, Charles Gates Beckwith, Morton C. Gassman, and Sol Cornberg, presented some of the new concepts to be considered in planning learning space for the future.

It is anticipated that the working papers included in this report will be used by other groups to further the study of "Learning Space". The continued study of this problem, by many groups, may have an important influence on the future design of adequate educational facilities in which educational media will be a fundamental part.

Lee W. Cochran
State University of Iowa

Chairman: Iowa Committee for
Okoboji Conferences

PERSONS ATTENDING THE
TENTH LAKE OKOBOJI AUDIOVISUAL LEADERSHIP CONFERENCE
August 16-20, 1964

Note: ( ) - The number in parenthesis following the name indicates the previous years this person has attended Okoboji Conferences and special committee assignments, if any.

1. Abercrombie, Edward A., Manager, Statesboro Film Library, State Department of Education, A-V Services, Student Center, GSC, Statesboro, Georgia 30459 (64)

2. Abraham, John M., Vice-President, Coronet Films, Coronet Building, 65 East South Water Street, Chicago, Illinois 60601 (64) (Representing NAVA)

3. Beckwith, Charles Gates, Eggers and Higgins, Architects, 100 East 42nd Street, New York 17, New York (64)

4. Blank, Gordon, Associate Professor, Indiana State College, Terre Haute, Indiana (63, 64)

5. Blankenship, Charles Robert, Director, Audiovisual Services, University of Akron, 302 E. Buchtel Avenue, Akron 4, Ohio (64)

6. Britton, Jack, American Optical Company, Box A, Buffalo 5, New York (64) (Representing NAVA)

7. Brown, James W., Graduate Dean, San Jose State College, San Jose, California (64)

8. Browning, Robert E., Consultant, Division of Audio-Visual Education, Office of Los Angeles County Superintendent of Schools, 155 W. Washington Boulevard, Los Angeles, California 90015 (64)

9. Brunson, Robert, Recording Consultant, Oklahoma City Schools, 900 N. Klein, Oklahoma City 6, Oklahoma (64)

10. Carruth, James W., Director, Audiovisual Education, Fayetteville City Schools, Box 5326, Fayetteville, North Carolina (64)

11. Clemens, Thomas, Chief, Media Research and Dissemination Branch, U.S. Office of Education, Washington, D.C. 20202 (64) (Representing USOE - Media Branch)

12. Cochran, Lee W., Director, Audiovisual Center, University of Iowa, Iowa City, Iowa (55 through 64) (Chairman, Iowa Committee for all Okoboji Conferences)

13. Cochran, Lida M., College of Education, University of Iowa, Iowa City, Iowa (60, 61, 62, 63, 64) (Iowa Committee)

14. Cornberg, Sol, Sol Cornberg Associates, P. O. Box 487, Holmes, New York 12531 (64)

15. Cowdery, Arthur, Jr., Consultant Educational Communications, Rochester Public Schools, 13 Fitzhugh Street, Rochester, New York (64)

16. Crooks, Forest L., Director, Audiovisual Education, Northeast Missouri Teachers College, Kirksville, Missouri (64)

17. Crossman, David, Educational Communications Specialist, New York State Department of Education, Room 1070, Albany, New York (63, 64) (Planning Committee 1964)

18. Daniels, Glenn H., Assistant Professor, Audio-Visual Education, Western Illinois University, Macomb, Illinois (62, 63, 64) (Iowa Committee)

19. de Kieffer, Robert, Director, Bureau of Audiovisual Instruction, Stadium Building, University of Colorado, Boulder, Colorado 80304 (55, 56, 58, 64)

20. de Martinez, Elsie Calero, Director, AV Program, Department of Education, Hato Rey, Puerto Rico (64) (Representing Puerto Rico)

21. Edling, Jack V., Director, A Center for Research on Teaching, Oregon State System of Higher Education, Monmouth, Oregon 97361 (64)

22. Ely, Donald P., Center for Instructional Communications, 121 College Place, Syracuse University, Syracuse, New York 13210 (55, 56, 64)

23. Eshleman, Winston, Director, Instructional Materials Center, Ampitheatre Public Schools, 125 East Prince Road, Tucson, Arizona (64)

24. Farley, Gerard P., Audiovisual Director, Milwaukee Public Schools, Administration Building, 5225 W. Vliet Street, Milwaukee, Wisconsin 53208 (64)

25. Gassman, Morton C., Associate Professor, Rensselaer Polytechnic Institute, School of Architecture, Troy, New York 12181 (64)

26. Gentry, Castelle G., Graduate Student, Audio-Visual Center, Michigan State University, East Lansing, Michigan (64) (Observer - Graduate Student)

27. Gerlach, Vernon, Assistant Professor of Education, 109 Education, Arizona State University, Tempe, Arizona 85281 (62, 63, 64) (Chairman, Planning Committee 1964)

28. Gilkey, Richard, Curriculum Materials Center, Jackson County Schools, Court House, Medford, Oregon 97501 (64)

29. Gillingham, Lawrence, Assistant Director, Audio-Visual Education, Houston Public Schools, 3901 Telephone Road, Houston, Texas 77023 (64)

30. Goldiamond, Israel, Executive Director, Institute of Behavioral Research, Forest Glen Lab, 2426 Linden Lane, Silver Spring, Maryland (64) (Keynote Speaker)

31. Grimes, William, Director of Campus Services, Bureau of Audiovisual Instruction, University of Colorado, 348 Stadium Building, Boulder, Colorado 80304 (64)

32. Guerin, David V., Coordinator, Instructional Materials, Garden City Public Schools, Office of Superintendent, Garden City, New York (6[illegible] 64)

33. Haack, John, Coordinator of AV & Safety Education, Davenport Public Schools, Administration Building, Davenport, Iowa (64) (Iowa Committee)

34. Hanley, Bernard T., Director of Audiovisual and Television, Middle Country Schools, District 11, Centereach, Long Island, New York 11720 (64)

35. Hannan, Thomas P., Assistant Superintendent, King County Schools, 309 King County Court House, Seattle, Washington 98104 (64)

36. Hartsell, Horace, Associate Director, Audio-Visual Center, Michigan State University, East Lansing, Michigan (56, 57, 58, 59, 63, 64)

37. Hedges, John R., Associate Director, Audiovisual Center, University of Iowa, Iowa City, Iowa (55 through 64) (Iowa Committee)

38. Hill, Harold, Vice President, National Association of Educational Broadcasters, 1346 Connecticut Avenue, Washington, D. C. 20036 (63, 64) (Planning Committee 1964)

39. Kelley, Gaylen B., School of Education, Boston University, 765 Commonwealth Avenue, Boston, Massachusetts 02215 (64)

40. Lake, Mrs. Leone H., Audio-Visual Building Coordinator, 8527 Crespi Boulevard, Miami Beach, Florida (60, 61, 62, 63, 64)

41. Lalime, Arthur, Director, Curriculum Materials Center, Norwalk Public Schools, Norwalk, Connecticut (63, 64)

42. Little, David L., Audiovisual Director, Boone County Intermediate School District, Boone, Iowa (63, 64) (Iowa Committee)

43. Long, Robert, Graduate Student, University of Iowa, Iowa City, Iowa (64) (Iowa Committee)

44. McIntosh, J. Stanley, Executive Director, Teaching Film Custodians, Inc., 25 West 43rd Street, New York, New York 10036 (57, 59, 62, 64)

45. Mennet, Earl F., Coordinator of Audio-Visual Services, Alameda County School Department, Room 189, 224 W. Winton Avenue, Hayward, California 94544 (64)

46. Merkel, Robert D., Consultant in Instruction, Texas Small Schools Project, Texas Education Agency, Austin, Texas 78711 (64)

47. Messier, Paul R., Specialist, School Facilities Technology, School Housing Section, Department of Health, Education and Welfare, Office of Education, Washington, D.C. 20202 (64) (Representing USOE - School Housing Section)

48. Miller, Charles J., Instructional Coordinator, Township High School District #214, 502 W. Euclid, Arlington Heights, Illinois (64)

49. Miller, Elwood, Graduate Student, Audio-Visual Center, Michigan State University, East Lansing, Michigan (64), (Observer - Graduate Student)

50. Miller, Thomas E., Teaching Aids Laboratory, 1988 North College Road, Columbus, Ohio 43210 (64)

51. Montgomery, John, KDPS-TV, Des Moines Public Schools, 1800 Grand Avenue, Des Moines, Iowa (64) (AACD)

52. Nibeck, Richard, Department of Audiovisual Instruction, National Education Association, 1201 Sixteenth Street, N.W., Washington, D.C. 20036 (63, 64) (Representing DAVI)

53. Noel, Mrs. Betty, 4900 Flora Vista Lane, Sacramento, California 95822 (64)

54. Noel, Francis, 4900 Flora Vista Lane, Sacramento, California 95822 (64)

55. Ogilvie, Mrs. Martha, Evanston Elementary School District, 1314 Ridge Avenue, Evanston, Illinois 60201 (64)

56. Page, James, Assistant Director, Program Development, Audio-Visual Center, Michigan State University, East Lansing, Michigan (58, 59, 64)

57. Parsons, E. Dudley, Consultant in Visual Education, Minneapolis Public Schools, Minneapolis 13, Minnesota (57, 58, 59, 60, 64)

58. Paulson, Robert, A-V Director, Price Laboratory School, State College of Iowa, Cedar Falls, Iowa (64) (Iowa Committee)

59. Prigge, William C., Assistant Professor of Education, Department of Education and Psychology, Illinois State University, Normal, Illinois (64)

60. Ramsey, Curtis P., Director, Learning Resources Center, George Peabody College for Teachers, Nashville, Tennessee (62, 63, 64)

61. Ramsey, Mrs. Marjorie, Learning Resources Center, George Peabody College for Teachers, Nashville, Tennessee (63, 64)

62. Riehle, Hal F., Director, Learning Laboratories, Florida Atlantic University, Boca Raton, Florida 33432 (64)

63. Rosenthal, Leo P., Coordinator, Instructional Materials Center, Grasmere School, Home Street Entrance, Fairfield, Connecticut (64)

64. Sherman, Mendel, Assistant Director, Audio-Visual Center, Indiana University, Bloomington, Indiana (57, 61, 62, 63, 68) (President DAVI)

65. Simonson, LeRoy D., Administrative Assistant, Fort Dodge Public Schools, Fort Dodge, Iowa (61, 62, 63, 68) (Iowa Committee)

66. Stapley, Mrs. Doris, 1318 West Pepper Place, Mesa, Arizona (68)

67. Stone, C. Walter, Director, Center for Library and Educational Media Studies, Graduate Library School, University of Pittsburgh, Pittsburgh, Pennsylvania 15213 (68)

68. Sutton, Chester C., Sr., H. Russell Swift School, R. D. #1, Pleasantville, New Jersey (68)

69. Uhrig, Howard N., Assistant Audiovisual Director, 620 West Washington Street, South Bend, Indiana 46601 (68)

70. White, Frederick A., Director, Bureau of Audiovisual Instruction, University of Wisconsin, 1312 West Johnson Street, Madison, Wisconsin 53706 (55, 58, 68) (Representing Educational Media Council)

71. Wright, Charles, Director, Office of Visual Education, Central Washington State College, Ellensburg, Washington (59, 60, 61, 68) (Planning Committee 1968)

CONFERENCE PLANNING COMMITTEE FOR 1964

The following persons were appointed by President William Allen, DAVI, to serve on the Planning Committee for the Tenth Lake Okoboji Audiovisual Leadership Conference:

Vernon Gerlach - Chairman
David M. Crossman
Gene Faris
Charles Wright
Harold E. Hill
Roy A. Frye

Planning for the 1964 Conference started in October, 1963, with the Committee selecting the theme "Learning Space and Educational Media in Instructional Programs". This topic had been highly suggested by the 1963 Okoboji Conference. Selection of delegates started in September, 1963, by all 1963 Okoboji delegates voting on the persons to be returned to the 1964 conference. Ten persons were voted back for this year's meeting. In November, 1963, the DAVI office sent out letters to all affiliated groups asking for a nomination of one delegate with two alternates to the 1964 conference. In February, 1964, the Planning Committee submitted a list of approximately 30 prospective delegates who would contribute to the topic selected. This list was placed on a ballot and voted on by the Executive Committee of DAVI, with the fifteen (15) persons receiving the highest number of votes being invited. Other delegates included the Officers and Executive Committee of DAVI, and select persons from other organizations interested in the topic.

The Planning Committee met next in April of 1964 at the DAVI Convention in Rochester, New York, where final plans were made for a keynote speaker, and other items connected with the meeting. The Committee again met on August 15, 1964, just prior to the conference to make final suggestions on how best to open the conference and appoint a number of committees for the conference.

The Planning Committee, in resolutions, has been thanked for the careful planning for this meeting. Few delegates realize the time spent by the Committee to make this a successful meeting.

The Iowa Committee for Okoboji Conferences is composed of staff members of the State University of Iowa, several appointed by the Audiovisual Education Association of Iowa, and graduate students. This Committee carry out the directives of the Planning Committee and make all local arrangements.

• • • •

FIRST GENERAL ASSEMBLY

Sunday, August 16
1:30 p. m.
Presiding: Vernon Gerlach, Chairman, Planning Committee

I. Lee W. Cochran, Chairman, Iowa Committee for Okoboji Conferences, was introduced. He welcomed the delegates to the 10th Lake Okoboji Audiovisual Leadership Conference and to Iowa. He also gave a brief development of the Iowa Lakeside Laboratory, where the conference is held, and read a welcome from President, Howard R. Bowen, of the State University of Iowa. Introduction of all members of the Iowa Committee were made, with duties of each person, and how they might best be of assistance to the delegates during the conference.

II. Lee W. Cochran presented the "Okoboji Gavel" to Vernon Gerlach, who officially opened the First General Assembly. The other members of the Planning Committee for the 1964 Okoboji Conference were introduced.

III. Chairman Gerlach then appointed an election committee with the specific charge to bring back nominations for co-chairmen of the 1964 Okoboji Conference. The committee members were:

Glenn Daniels, Chairman
Robert E. de Kieffer
Horace Hartsell
Harold Hill
John R. Hedges

IV. The Planning Committee recommended the following be adopted by the Conference:

A. To declare Tuesday, August 18, after dinner, open for recreational purposes
B. To adjourn the Conference at 11:00 a. m. on Thursday, August 20
C. To accept the Ground Rules for Okoboji Conferences as established by an Ad-Hoc Committee of DAVI (All were accepted)

V. Chairman Gerlach announced the following appointments of Conference Committees made by the Planning Committee:

A. Social Committee:
Richard Nibeck, Chairman
Leone Lake
David Little
Gordon Blank
David Guerin

(First General Assembly - Continued)

B. Chairman of Rest:
    Robert E. de Kieffer

C. Press Committee:
    Arthur Lalime, Chairman
    Francis Noel
    Frederick White

D. Resolutions Committee:
    Mendel Sherman, Chairman
    William Prigge
    Jack Edling

E. Future Okoboji Conference Study Committee:
    Robert E. de Kieffer, Chairman
    Horace Hartsell
    E. Dudley Parsons
    Mendel Sherman
    Vernon Gerlach

It should be noted that this committee was composed of persons who had served as co-chairman of one of the previous Okoboji Conferences.

F. Conference Visualizers:
    David Little
    William Prigge
    Robert Paulson

G. Newsletter Committee:
    Leone Lake, Chairman
    Doris Stapley
    Thomas P. Hannan
    Elwood Miller
    Marjorie Ramsey
    David Little

H. Story Teller:
    Arthur Lalime

I. Recorders:
    Glenn Daniels
    John Haack

J. It was moved by Daniels, seconded by de Kieffer, that the Planning Committee serve as a Steering Committee during the conference.

CARRIED

VI. The Election Committee presented the nominees for co-chairmen of the conference. A motion was made and seconded that a simple plurality would elect. CARRIED

Elected as Co-Chairmen for the Tenth Okoboji Conference were:
Donald P. Ely
James W. Brown

The Co-Chairmen were presented with the "Okoboji Gavel" by Vernon Gerlach, and charged with the duties of carrying on the conference.

VII. C. Walter Stone was appointed as "Conference Summarizer".

VIII. Lee W. Cochran was asked to chairman a session on "Reports of Previous Okoboji Conferences". This report had been planned in advance and was presented by one of the co-chairmen of all previous nine (9) Okoboji Conferences. Some co-chairmen were unable to be present at the conference but sent tape reports. The reports presented were as follows:

1955 - 1st Conference - Reported by Charles F. Schuller on tape. The co-chairman of the 1955 conference was the late A. J. Foy Cross.

1956 - 2nd Conference - Reported by Robert E. de Kieffer and co-chairman, William Fulton by tape.

1957 - 3rd Conference - Reported by Max (Pat) Bildersee on tape with references to his co-chairman, Walter Bell.

1958 - 4th Conference - Reported by Horace Hartsell with reference to certain statements by the co-chairman, William Gnaedinger.

1959 - 5th Conference - Reported by E. Dudley Parsons, with reference to the co-chairman, James J. McPherson.

1960 - 6th Conference - Reported by Otis McBride on tape with reference to Carolyn Guss, the only woman to serve as co-chairman of an Okoboji Conference.

1961 - 7th Conference - Reported by Mendel Sherman on tape with reference to the co-chairman, Richard B. Lewis. Note: Mendel Sherman attended the 1964 conference but arrived after these reports were presented.

1962 - 8th Conference - Reported by Eugene Oxhandler on tape with reference to the co-chairman, Thomas E. McQuay.

1963 - 9th Conference - Reported by Vernon Gerlach who also read a letter from the co-chairman, Loran Twyford.

It should be noted that these reports assisted the committee previously appointed on "Future Okoboji Conference Study Committee", in judging the worth of this type of meeting.

(First General Assembly - Continued)

IX. Vernon Gerlach presented a plaque to J. Stanley McIntosh, Executive Director of Teaching Film Custodians, Inc. , in appreciation of the financial support of the Okoboji Conferences by Teaching Film Custodians, Inc., over the ten year period.

X. A transparency of an editorial by Sydney Harris was presented as a motivation to the topic "Genuine thinking requires two persons within you -- The one who questions and the one who answers; and if these are not sufficiently separated, then what passes for thinking is merely a kind of mental solitaire which one always wins by cheating".

E. Dudley Parsons moved that the Sydney Harris editorial be adopted as a guideline for this conference. CARRIED

XI. First General Assembly adjourned.

* * * * * *

SECOND GENERAL ASSEMBLY

Sunday, August 16
7:30 p. m.
Presiding: Donald P. Ely

I. The Editorial Committee presented the following "Preface" to be inserted prior to the keynote talk:

> "The theme selected for the 10th Annual Lake Okoboji Audiovisual Leadership Conference was 'Learning Space and Educational Media in Instructional Programs'. The keynote speaker and primary consultant for the conference was Dr. Israel Goldiamond, Executive Director of the Institute of Behavioral Research, Silver Spring, Maryland. The influence of his ideas and of his points of view are reflected in some of the committee reports that follow. In these cases, conscious attempts were made to show the relationship of his concepts of learning to curriculum and space design".

II. Vernon Gerlach was asked to introduce the keynote speaker, Dr. Israel Goldiamond, Executive Director, Institute of Behavioral Research, Silver Spring, Maryland.

ARCHITECTURAL SPACE AND MEDIA IN THE PLANNING OF LEARNING PROCESSES

By Dr. Israel Goldiamond

By now it has become a commonplace that behavior takes place within an environment. Indeed, there is a reciprocal relationship between the two. Man changes his environment; he dams rivers; sets up enclosures to control the temperature and lighting, and sets up other specialized environments to facilitate other behaviors. The environment, including the one that man himself establishes, also changes man and governs his behavior.

In order to facilitate learning by enclosing a space for this purpose, we can set up school walls which are made of marble, or set up school walls which are made of dry wall. In both cases, we will effectively enclose a space for our educational purposes, but the manner in which we enclose this space may have profound effects upon our behavior thereafter. In the case of the marble walls, we will attempt to preserve the walls and limit our behaviors in accord with them; but in the case of the dry wall, we can tear down the walls, go through them, and engage in other tasks which generally indicate a disrespect for the material. Indeed, one of the most productive research periods I had was when we were given an old building for a laboratory. We were able to go through the walls, tear them down, reconstruct them, and get a tremendous amount of research done. When authorities set up a new laboratory specially designed for our purposes, good walls were put up and our research behaviors dropped immediately. If our changing research plans now called for tearing down a wall, such changes in the structure were inhibited by what we knew to be the consequences of such behavior. As a matter of fact, when somebody merely soiled one of the walls, a dean brought this sharply to our attention.

The past few years have witnessed the development of a technology explicitly related to environmental control. New developments in architecture and structure include new materials and new methods for enclosing space. The major subject of the present discussion will be the effects of a different type of technology upon the development of an analysis of learning behavior and its control. This newer behavioral technology is highly relevant to the other technologies of environmental control.

Practice, science, and technology. -- Before going into the subject of this paper, it may be necessary to discuss a relationship between science, technology, and practice, which is pertinent to the implementation of the newer technologies in the educational system. It will be recalled that the nuclear age was given a major impetus by a letter to President Roosevelt indicating that there were implicit in the science of physics certain procedures which, if instrumented, could materially shorten the war. The theoretical physicist changed his status from being the absentminded professor of the comic strips, to a far superior position. Although this is all to the good, on an intellectual level it has often led to the notion that successful practice must be predicated on science. The picture we would like to present of the relationship between practice, science, and technology is more complex. First we have practice, successful and unsuccessful. By practice, I mean the attempt to apply knowledge, artistry, and intuition to the solution of practical problems. Thus, we have teachers in one-room school houses without visual aids, under the worst possible conditions, who still manage to turn out inspired students. Their practice of education is a very successful one. Similarly, the Phoenicians sailed the seas and were the best practitioners of navigation around. Successes and failures in such practice, as well as other influences, may then lead to an attempt to systematize the procedures involved, and to make general statements about them. Such systematization is involved in science, which may then be applied for the solution of practical problems, and such application of science I would call technology. The technologist may then be called upon to solve problems which are beyond the scope of his systematizations, and which require artistry, nonsystematized experience, and the like, and a new practice may then be developed which incorporates prior science and technology. This new practice may then lead to further science, further technology, and the like, in a never-ending spiral. When we add to this spiral intrusions from extraneous fields, such as occurred in medicine when the microscope was introduced, we can see that the commonly held picture of neatness and tidiness in the development of science is an oversimplification.

Our discussion of the use of space and educational media in the planning of behavioral processes should be considered in the context of this relationship between practice, science, and technology. Just as the head of a prominent advertising firm keeps on his desk a Hershey wrapper (Hershey's does not advertise), we might remember the teacher in the one-room school house who can do a better teaching job on occasion than the teacher in the million dollar building which contains all that modern technology can supply her. Her practice is quite effective, and we might profitably examine what she does. If the developments in behavioral technology which I shall present today arouse a comment on your part as, "But that's what the good teacher already does," I will be happy since you are indicating a commonality between my field and successful educational practice. A difference is that the analysis of behavior involves systematization of procedures and knowledge in the analysis of behavior and its modification. And to the extent that its application, as technology, is seen by you as being pertinent to educational practice, it may be useful in the spiral of practice-science-technology-practice which I have mentioned.

The Scientific Analysis of Behavior

Behavioral definition of higher mental processes. -- The developments in the analysis of behavior which I shall focus on today can be related to an approach to behavioral processes which is exemplified by cybernetices. One of the early topics discussed in this field was the problem of thinking. Rather than defining thinking in terms of what goes on inside the head of the thinker, the scientists involved defined the term by the observable conditions under which the term was used. Put as a question, it would be: When we state that another person thinks, what does he have to do, and when, for us to say this? Stated more formally, the question they asked was: What behaviors under what conditions define our use of the term, thinking? The attempt made was to specify the behaviors and the conditions. It occurred to a member of the group that a machine could be constructed which exhibited those behaviors under those conditions, and this approach ultimately led to the computers and control mechanisms of today. Now, I am not going to get into the question of do these machines really think. The only point I wish to make is that there is some usefulness in defining some higher mental process we are interested in by the behaviors and conditions whereby we identify the existence of such a higher mental process. If we can specify such behaviors and conditions, we may not only construct a machine which engages in such processes, but we may also use these behaviors as criteria to aim for with regard to the children we are working with. We can disagree about the behaviors and conditions. I can define a higher mental process as behaviors a, b, when y, z, occurs, and you can define the process as a, b, c, d, under w, x, y, z. Or you can define the process as g, h under r, s. But we are both dealing in observables, and we can both state the behaviors we wish to get and then try to get them. It is at this point that the analogies between cybernetics and behavior break down. When we try to get a machine to exhibit these behaviors, we can construct a device and add parts for this purpose. However, we cannot at the present engage in such mechanical manipulation with people. In order to get children to exhibit those behaviors which define the higher mental processes, we must utilize different processes and an entirely different discipline.

Dynamics and statics of behavior. -- We can define thinking in the behavioral manner suggested in the foregoing paragraph. We can also define vision in accord with such processes, as occurs when the engineer states that the radar network sees. By this he means that the radar network responds differentially to differences in reflected wavelengths, which is one way of defining vision. We can also talk of memory devices, the storage of information, information retrieval and processing, memory devices with random access, and the like. Again, we are defining memory in the behavioral manner indicated. Although we can do this with profits, such definitions often leave us dissatisfied. We are dissatisfied not only because the procedures for constructing a mechanical or social memory device are different from the procedures for getting a person to remember, but also because of another different which I should like to consider now.

The example which I find most useful in this context is that of three men, each of whom bump into chairs and other objects in the middle of a room in exactly the same manner. Motion pictures taken of these men, as well as measurements of force and other instrumental definitions, indicate no differences between the behaviors. One of the three men is a genuinely blind person, another of these three men is hysterically blind, and the third of these three men is a malingerer. Are their three sets of behaviors, all of which include bumping into chairs and nondifferential responding to reflected wavelengths, identical? Viewed in terms of the cybernetic-behaviorist definition given, the three behaviors *are* identical. Yet we would be dissatisfied with a system which equated these behaviors. We would state that the behaviors *are* different.

One way of conceptualizing the difference between these people is to state that the behaviors *mean* different things to them, and are accordingly different.

Another way of conceptualizing the differences is to state that the three people are motivated differently. The malingerer is motivated by staying out of the Army, the hysteric is motivated by what the psychiatrist calls secondary gain, and the motivation of the person with the severed optic nerve is not considered to be a relevant variable.

Conceptualization in terms of motivation and meaning serve the same purpose in this case, namely, to indicate the apparent shortcoming of a purely behavioral definition or behavior.

We may raise a prior question: Why are we interested in calling these behaviors different, when their forms (or topographies) are identical? One answer might be that if we have a social responsibility to alter these behaviors we shall have to use three different procedures to do so. The behavioral definition given, which equates the behaviors, is of little help in the task. It is concerned with outward appearances, and hence, if we wish to deal with real problems, we must go into inner states of meaning and motivation.

The issue being raised is one around which two different schools of psychology have been formed, with different relations to educational practice. On the one hand, those learning theories which deal purely with observables such as behavior have been regarded as highly scientific, but also as impractical with regard to the classroom, since they neglect meaning and motivation. On the other hand, theories which deal with meaning and motivation have been regarded as being more relevant to the classroom than the purely behavioral theories, but it has also been argued that these terms and the theories which use them are sloppy and soft-headed, and it is difficult to know what is going on inside the child's head.

The position which I shall take today is neutral with regard to this controversy. Briefly, it is that we can deal with motivation and with meaning, and also be scientific about it. Furthermore, this position is highly suitable for extension into the classroom, since it takes into account the practical problems of alteration of the behavior. Indeed, such alteration is the primary method of analysis.

Any statement we make relating motivation to behavior can be redefined as a statement which concerns the *consequences* of behavior. For example, when we state that a person is motivated by hunger, we are defining hunger in one of four ways:

(Dr. Goldiamond's keynote talk - Continued)

1. By the amount of time since the organism has last eaten. Thus, a common example of such a definition of hunger is the mother who asks her child, "How come you're not hungry? You haven't eaten all day."

2. Given behaviors which have in the past produced food are at a high level. Here the mother tells her child, "How come you keep opening the refrigerator? You're not hungry; you just ate."

3. Stimuli, relevant to food seem to have increasing control over behavior. The child lingers over food advertisements, seems to find the refrigerator more readily, and so on.

4. Food will be a reinforcer for behavior. Stated otherwise, any behavior which produces food will be maintained. The mother may be able to get the child to make his bed by making an extra snack contingent upon it.

We can add other examples, but these four will suffice. It will be noted that all four statements, which define hunger as motivation, have reference to a consequence of behavior, namely, food. We can also state that the meaning of the behaviors involved in these cases is that they produce food. Thus, we can define meaning, as it is used in this sense, and motivation in terms of the consequences of behavior.

Turning to our three blind men, we can also state that the three behaviors are different in that they are maintained by different consequences. Thus, we would state that the behavior of the malingerer is maintained by the consequences of staying out of the Army, the behavior of the hysteric is maintained by those consequences subsumed under secondary gain (these might include having his wife wait on him hand and foot), and in the third case, is not maintained by any consequences we can point out. The fact that the blindness of the genuinely blind person would not be considered to be a psychological problem also indicates to us that we are equating psychological problems with those problems which are manipulable by altering their consequences.

Are the behaviors the same or are they not the same? If we define the behaviors by what can be considered their topography, the behaviors are identical, as any machine would verify. If we define the behaviors by their consequences, that is, by their maintaining variables, the behaviors are different. These two differences in definition I have classified elsewhere as static and dynamic definitions. Thus, behaviors which are defined similarly in a static manner may be different when defined dynamically, as in the case of the blind men cited. Or a pigeon who pecks for food, or who pecks another bird's eyes out. On the other hand, behaviors which are defined differently in a static manner may be defined similarly in a dynamic manner. Thus, for example, reading Braille and reading print are different behaviors when described statically, since one involves finger movements and the other, eye movements. They are similar behaviors when described dynamically, that is, the consequences of both are communication, and they are both called reading.

The latter example also serves to illustrate the fact that stimuli which are defined as being topographically dissimilar, raised letters and printed letters, can be dynamically the same. And topographically similar stimuli such as the Russian P and English P can be dynamically different.

We can state that similar Braille and print passages *mean* the same, and that P *means* one sound in Russian and a different one in English. On the other hand, we can state that the consequences attached to similar behaviors are the same in one case (Braille and print) and differ in the other (P and P).

Classifying behaviors or stimuli by their consequences thus serves the same purpose, in this case, as classifying them in terms of meaning or motivation. There is a critical difference between the consequence classification and the motivation-meaning method. We can readily observe, manipulate, and scientifically investigate consequences. That the same purpose is served here as is served when we talk of meaning makes it possible to overcome scientifically those objections to behavioral analysis which have been rightfully posed by educators and theorists who have insisted that motivation and meaning enter into the definition of behavior; we can deal with the problems which these educators consider to be important.

One way to discover the maintaining variables which define the behavior is to attempt to change what one considers to be the maintaining variables, and see if the behavior then changes in functional relation to such change. In the laboratory, procedures have been developed dedicated precisely toward this end, and such procedures have led to the development of a technology of behavior which has profound implications for education.

Human and behavioral engineering. -- We can make a distinction between human engineering and behavioral engineering in this context. A good part (though not all) of human engineering has been defined behavior and stimuli statically. We set dials and instruments in a specified manner. We provide a certain amount of lighting in a classroom. We use certain texts and visual aids. Despite all the applications of the most useful procedures from human engineering and despite the best application from all that we know about the conditions that optimize learning, we still may not get learning. We can bring a child to school under the most beautiful conditions, but we cannot make him learn. On the contrary, we know of cases of children coming from the most deplorable conditions in which learning does occur. We know that Milton wrote in prison and that much research has been done in attics.

Behavioral engineering, which I shall cite in contrast to the type of environmental control just mentioned, not only defines behavior and stimuli by their consequences, but seeks to provide environmental controls over behavior by controlling the consequences of behavior in an environment, rather than through environmental control of its static elements. We know that "you can bring a horse to water"; we can engineer the trough, the dials, the stable in a manner such as to make it very easy for the horse to drink. This would be called proper human engineering, or in this case, equine engineering. But we also know that although "you can bring a horse to water, you can't make him drink." This involves the addition of motivation considered to be incapable of control. As long as we deal with behavior in static terms, the moral may be true. But by using *behavioral* engineering, we *can* make the horse drink. We simply make him thirsty. Stated otherwise, we can deprive him of water, feed him salt, or engage in any of the various manipulations of the environment which will now make water an effective reinforcer for the behavior of drinking. We *can* bring a child to the classroom and we *can* make him learn. But the best media and static architectural plans will not do so. And without such media, and with poor static environmental control, but with good dynamic control, we will get learning, as Lincoln and others have demonstrated. The trick is, of course, to establish the static environmental controls which are appropriate to the dynamic environmental controls which are appropriate to learning.

It has often been assumed on the basis of static relationships between stimuli and behavior that learning takes place most effectively in a very specialized environment. This assumption is often extended into the design of space for experimental research in learning. Animals are often placed in specially constructed environments or boxes which isolate them from distracting stimuli outside them, and learning experiments are then conducted. For children, these boxes are called booths. An example of a different approach, namely a dynamic relationship of behavior to the environment, is the environment in which a pair of chimpanzees is being run in a learning experiment at the Institute for Behavioral Research (Ferster, 1964). These two chimpanzees have been taught binary enumeration. A chimpanzee presses a button, which presents from one to seven triangles in a screen. Below the screen are three lights which can be turned on or off by pressing a button under each. The light on is 1, and the light off is 0. Thus, when three triangles are presented, the chimpanzee must press the buttons to produce 011; for six triangles, he must produce 110; for five 101, and so on. This is a rather complicated task, and the environment of the chimpanzee has been programmed to produce this highly complex behavior. Quite obviously, the chimpanzees did not start out with this behavior in their repertoire, and the environment was gradually altered so that this behavior was then established. All their food is contingent upon successful performance; about five hours a day of successful performance provides sufficient food for sustenance and growth.

What is interesting about this environment is that it is not the enclosed kind of box often associated with operant research. The two chimpanzees live together in an enclosure which is much larger than that available in the average zoo. They play together, fight with each other, scream, go to sleep, and do a variety of things. When one of the chimpanzees wishes to work, he or she goes into one of the wire-enclosed school rooms on the premises, closes the door, and starts to work. While a chimpanzee is working, the other chimpanzee may be jumping outside, teasing him, or engaging in other kinds of distracting behavior. We would state that this is not the appropriate environment for learning since there are all kinds of distractions going on. Nevertheless, learning has gone on all the way through. There is control, but the control is not of the total environment, but rather of the significant environment, namely, the environment of consequences. If the consequences and the behavior are appropriately controlled, we apparently do not have to worry about much of the rest.

The chimpanzees are quite free. They are free to come and go at will, they can spend ten minutes in the school room or thirty minutes, or put in their entire five hour session at a lick. In the meantime, they can chatter with each other, swing and do all of the things that chimpanzees are wont to do. We also have six baboons in a different colony. They, too, live together, peel off to go to school. There is a constant stream of visitors and observers to the laboratory, and no one says "Do not disturb the animals." The learning behaviors of the baboons are more consequential to them than the visitors are, and the animals ignore the visitors, who are literally inconsequential.

Is such programming and the relationship of consequences to the behavior appropriate to human behavior and human environments? An example is speech. We speak under all kinds of different circumstances--providing there is a person to hear and with whom we wish to speak. We have been engaged in relating behavior to its consequences to develop a program to attenuate stuttering (Goldiamond, 1965). By certain programming procedures, we have in 25 out of 25 cases, caused the stuttering of chronic stutterers to drop to zero while a fluent reading rate of 250 words a minute is established, which is maintained indefinitely (in the laboratory) thereafter. We are currently trying to program the carry-over of this behavior outside the laboratory, as well.

We shall now consider the basic nature of such programming in relation to a dynamic analysis of behavior.

Differential Reinforcement

In a dynamic definition of behavior the consequences of behavior not only define our response classes and stimulus classes, but also serve to maintain on-going behavior, to establish new behaviors, and to modify other behaviors. In all of these processes, differential reinforcement is used.

Differential reinforcement refers to the methodical relation of consequences to behavior, or to the conditions under which behavior occurs. Such relations occur in the natural ecology. As Ogden Nash once said "I could live my life in ease and insouciance if it weren't for making a living which is rather a nuisance." When a child learns to ride a bicycle, turning the pedals has the immediate consequence of moving him forward at a rate related to his pedaling. Turning the front wheel in the direction of a fall will have the immediate consequence of breaking the fall. It will also have the consequence of not having him move forward.

Eventually, through such immediate application of consequences to his behaviors by his natural environment, almost every child learns to ride a bicycle and this behavior becomes differentially related to conditions of the road, wind, obstacles, and the like. The consequences are so invariently related to behavior that all kinds of circus animals are taught to ride bicycles, as well.

In the laboratory, we have been able to study the precise effect of consequences upon behavior through controlling and scheduling the relationships which invariably occur in nature. In nature, for example, the pecking of a pigeon on the ground has the immediate consequence of producing food. In the laboratory, we may have the pigeon pecking at a disk, but it is we who decide if he will get the food. We present or withhold the consequences, and can thereby assess the role these play in the organism's behaviors, or the conditions under which they occur. For example, we may present food when the pigeon raises his head, and not present it when he does not. We may thereby get him to stretch, and peck at a disk on high. Or food may be presented when he pecks at a green disk, but not at a red one. This systematic relationship of different consequences to different behaviors or different conditions is called differential reinforcement, and this procedure is used consistently in the many experimental studies of learning. A case in point is the rat who runs a T maze. At one arm of the T is food and at the other arm there is no food. Or a monkey may be presented with two cups, one with a triangle on it and the other with a circle on it. Underneath one of the cups is a grape. Children take various examinations in school. If they behave one way, they get a good grade; and if they behave in yet another way, they get a poor grade. Differential consequences are almost inextricably interwoven into definitions of learning and their procedures.

Much of the learning theory to which educational theory is supposedly related has been developed by such procedures. The applicability of such theory to the classroom situation has often been considered academic and highly theoretical; good teachers have often eschewed such theories and have been concerned with more practical matters, such as getting their children to learn. What I wish to discuss today is a development in our laboratory understanding of learning which makes unwise such divorce from theory and practice, and which is of tremendous practical importance to the teacher and to both educational practice and theory.

This can probably best be considered within the framework of the three basic phases of a behavioral definition of learning.

The Three Phases of Learning

It should be noted that there are various kinds of learning. In one case, the learning can best be defined by an outcome which is a behavioral change. An example here is our pigeon stretching his neck and pecking at a disk on the wall like a woodpecker, instead of on the ground, as all respectable pigeons do. The child riding a bicycle is another example. This is called the acquisition of behavioral skills, or response learning. Another type of learning involves having the same behavior occur to a new part of the environment in whose presence it had hitherto not occurred. For the pigeon, it is responding in the presence of the green light and not in the presence of the red light, when pecking for these is differentially reinforced. The child saying "red" when those three letters are presented is another case in point. We call such learning the establishment of a discrimination skill. In yet another type of learning both the behavior and the stimuli controlling it change The obvious example here is, of course, learning to read and write a foreign language, where different squiggles on a page produce different kinds of verbal behavior. The significance of the squiggle is changed, and the behaviors are also changed. In all three kinds of learning, skill learning, discrimination learning, and discrimination-skill learning, what has changed is the functional relation of the behavior to its environment. Accordingly, in our discussion of learning we shall be concerned with the functional relations of behavior to the environment.

All learning situations can, like Gaul, be divided into three parts. These three parts are: (1) the initial functional relation of behavior to its environment; (2) the criterion functional relation of behavior to its environment; and (3) the program mediating between the two. We shall consider these separately.

1. The initial functional relation. -- The initial stage is where we find the organism. The child is unable to read when he enters the first grade. The pigeon pecks on the ground. The driver does not know how to handle the car.

2. The criterion functional relation. -- This is the desired outcome; in programmed learning, it is referred to as the terminal behavior. In actuality, this is the functional relation between behavior and its environment which we would like to have at the end of our course.

When we state that we wish to have the child learn to read with understanding; our criterion relationship is not only that the verbal responses he makes to the text be the same ones that his teacher makes to the text (this is rote reading), but also that his own verbal responses thus made may affect his behavior the same way that those verbal responses made by his teacher would also affect it: if the text says "Look at the ceiling," and he responds by looking at the ceiling, as he would do when the teacher told him "Look at the ceiling." We have now defined behaviorally reading with understanding. I can rote read Finnish, since it is written in the Latin alphabet. An illiterate Finn understands what someone else reads; he can not read. For me to read Finnish with understanding, I must react to the text otherwise.

One of the important conceptual contributions made by modern behavioral analysis is its definition of complex mental processes in behavioral terms, as in the definition just given of reading with understanding. We can now not only define our criterion behavior, but can also ascertain whether or not it has been acquired and try to program the environment to try to change behaviors toward this criterion from its initial functional relation to the environment.

3. The mediating program. -- The third element in learning is the program or set of procedures which mediates between the initial functional relation and the terminal functional relation. These programs are of two kinds: (a) the single step method and (b) the approximation method. Differences between these methods partly underlie the current divorce between learning theory and educational practice.

(a) The single step method. -- The single step method is the one used in classical learning theory. It is exemplified by the rat in the T-maze, or the monkey with two cups before him. In each of these cases, there is (1) the initial functional relation, with neither animal exhibiting the appropriate behavior or discrimination, and (2) the terminal functional relation, characterized by performance demonstrating a behavioral skill or discrimination. (3) Differential reinforcement is used in both acquisitions, that is, at one side of the maze and under one of the cups there is food, while the other side of the maze and the other cup is not rewarded. The differential reinforcement is attached solely to the criterion functional relation, hence I am calling this the single-step method. It is up to the animal to come under the control of such differential reinforcement, and when he does so, that is, when his criterion behavior replaces the initial behavior, we say that he has learned. The criterion is usually defined by some number of correct trials in a row. It takes the animals many trials to learn, the number of trials differ, and may then be related to other variables such as drive, training procedures, and the like. A considerable amount of unlearning must occur. For example, the cup with the triangle on it may be on the left when the monkey picks it up and finds a grape underneath. On the next trial it is the circle which is on the left, and the monkey goes to the left again, that position having been reinforced. Preferences based upon extraneous categories such as position, color, brightness, and so on, all have to be extinguished until only the correct category comes to control the performance. The many trials accordingly include a considerable number of non-reinforced trials, or trials with extinction; and in the human case, there can be discouragement and frustration.

Despite the difficulties encountered using this procedure (and possibly created by it), much of classical experimental research uses it, and much theory is based upon it.

(b) The approximation method. -- The approximation method is similar in basic outline to the single step method but deviates in a very important respect. It is similar to the single step method in that it includes (1) the initial behavior of the organism, (2) a criterion behavior or discrimination skill desired by the experimenter, and (3) differential reinforcement is used to alter the organism's behavior from Stage 1 to Stage 2. However, the differential reinforcement is not applied solely to the criterion performance as was the case in the single step method. The experimenter or trainer sets up a series of intermediate steps between the initial functional relation and the criterion relation. Each step resembles the previous step, so that a behavior maintained in the previous step is continued in the next one, but each step also differs from the preceding step in a slight way so that a new element enters the functional relation. The new element is in the direction of the criterion relation. With a carefully constructed program, each step is reinforced, so that extinction or failure does not occur. This is the approximation method (the behaviors successively approach the criterion). The series of steps which mediates between the initial and terminal functional relations is called a program.

It is to be noted that in this procedure, the experimenter sets the program of learning; in the single step procedure, the organism must find out for itself,after learning and unlearning the wrong things. This program can be called a behavioral curriculum, in the same sense that schools have a curriculum of courses, namely, a sequences of behaviors or discriminations required to move on toward a goal.

The approximation methods have been used in two areas, and where they have been used learning has been accomplished very rapidly. These two areas are discrimination training and response training. We shall discuss them separately.

1. Discrimination learning: fading. -- In the fading procedure, we establish a criterion discrimination by starting with an initial discrimination which is readily available to the organism. It normally takes thousands of trials to get a pigeon to discriminate between a fat horizontal bar and a fat vertical bar, using the single step method where pecking when the vertical bar is presented is reinforced, but pecking for the horizontal bar is not. It is very easy to establish certain color discriminations with pigeons. Accordingly, we imbed the vertical bar on a green field and the horizontal bar on a red field. We differentially reinforce and the pigeon will rapidly acquire the discrimination of green from red. Once this is acquired, with each successive presentation, the color is gradually faded out, that is, the colors are made more pastel-like or desaturated. In a very few trials, the only distinction between the two presentations will be that of verticality versus horizontality, and the correct behavior will have been established almost without error (Terrace, 1963). The efficacy of this procedure is in marked contrast to the thousands of trials required for the standard single step method.

This method has recently been used to establish discrimination of the directions of different triangles in preschool children (Moore and Goldiamond, 1964). Here the child was presented with a triangle pointed straight down, 25° to the left, or 25° to the right. The triangle was then withdrawn, and then all three triangles were presented, with the child required to pick the one that had just gone out. Establishment of discrimination proved extremely difficult. A fading program was then instituted. Only the correct triangle was fully illuminated, with the two incorrect triangles being dimly illuminated. The child learns quickly to select the illuminated triangle. The illumination of the nonilluminated triangles was then gradually increased, and within 30 steps, all triangles were illuminated equally; the child now selected the correct one in each case. Practice did not make perfect, since a child with the least practice, but on whom a program was used, was the most rapid learner. These procedures have also been used to teach highly complex abstractions to a severely retarded child (Sidman, 1964).

(Dr. Goldiamond's keynote talk - Continued)

2. Skill training: Shaping. --In this method, differential reinforcement and steps are applied to the acquisition of new responses. The best laboratory example here is of the pigeon who starts out pecking on the ground. We want him to peck high up at a disk mounted on the wall. The animal is observed carefully and if he raises his head, reinforcement is applied immediately; and if he lowers it, it is not. Soon the animal will be stretching his head, standing on tip toes and can then gradually be moved over to the front of the box. This method is a classical one in training of behavior and is the method which initiated the programmed procedures of programmed instruction (Holland, 1960).

Complex behavioral repertoires and complex discriminative skills can be acquired in these manners. The complex discriminative skills which can be acquired include abstractions and concepts. For example, if when a red star and a green star are presented, only the behavior to the green star is reinforced; when a green circle and red circle are presented, only the green circle is thus reinforced; if when a green square and a red square are presented, only the green square is thus reinforced, eventually when novel red and green images are presented, the pigeon will come instantaneously to discriminate the green over the red, and we state that he has thus "abstracted greenness" (Holland and Skinner, 1961). In a like manner, Herrnstein and Loveland (1964) were able to demonstrate that pigeons had the concept of people: they pecked when slides containing people were presented and not when the slides did not contain people. The slides varied in number of people, ages, sizes, races, states of dress and undress, yet the pigeons sorted out the slides containing people from those that did not.

These procedures can be extended to verbal behavior and those abstractions and concepts which are called words. I shall now serially present a pair of words. One of the two is correct, and I want you to indicate which you think is correct. This is the only information you will get; consider yourself a pigeon. Let's start. The first two letters are these:

1. A B✓

Which of these is correct? (Hands for A, hands for B). Those of you who raised your hands on B were correct.

I shall now present the second pair.

2. B✓ D

Which of these is correct? (Hands for B, hands for D). B again was correct. I shall now present the third. (For space reasons, only the sequence will be presented; the intervening instructions and reinforcements of the correct form which accompanied the demonstration will be omitted):

(Dr. Goldiamond's keynote talk - Continued)

3.	B	O
4.	O	B
5.	JB	AQ
6.	URB	VOX
7.	BULL	COW
8.	SOW	BOAR
9.	BUSTER	NANCY
10.	DAISY MAE	LI'L ABNER
11.	ROBERT	MAY
12.	ANNETTE	BOB
13.	BOY	GIRL
14.	SONNY BOY	BETTY ANN
15.	BRUCE	BETSY
16.	EDNA	WILLIAM
17.	LOUISE	GEORGE
18.	EDWARD	RACHEL
19.	JOHN	ROBERTA

You will note that at the end, practically all of you choose John over Roberta; you rejected the word containing B, which was your initial discrimination, but transferred your discrimination to those words which were the names of boys rather than girls. There were very few errors. Thus, the concept of masculinity of names, something which pigeons could not have acquired was established almost without error. We can teach complex abstractions and verbal behaviors in this way (cf. Goldiamond, 1964b).

The Importance of Errorless Performance

Concern with errorless performance is not a fetish. If I buy a car I would like to get a car which starts when I wish it to and not one which starts on the average after a certain number of trials. A manufacturer who produces such cars would quickly go out of business. We deduce his manufacturing skill from the success of his cars. Similar logic may be extended to theories of learning and learning practices as well.

There is yet another reason why the absence of error is important. Error can be defined as a nonreinforced trial, as a trial involving extinction, or even punishment. Recent research by Azrin and others (1964) is casting important light on the social effects of extinction and frustration. In these experiments, two animals are placed in a small enclosure. A painful stimulus, such as shock or heat is suddenly applied. The animals then promptly turn and fight each other. This behavior has been observed up and down the animal kingdom in monkeys, rabbits, pigeons, opposums, and turtles, and is unlearned. If the space is sufficiently large, however, the animals may engage in escape behavior when the stimulus is presented. A space which is small enough to constrain a monkey is large enough to produce escape behavior in a mouse. When shock is applied, the mouse will start to run away, but the monkey will turn on him and bite his head off. The attack extends to members of other species and even to inanimate objects such as terrycloth monkeys. What is more significant is that the aggressive behavior will occur not only when a painful stimulus is presented, but also when unfavorable changes in the environment occur, such as extinction. For example, a pigeon pecks at a disk which provides food with each peck. (At the other end of the box is a pigeon who is tied down.) When the schedule of reinforcement is switched from continual reinforcement to extinction the pigeon will immediately attack the pigeon who is tied down, often pecking his eyes out, as soon as he stops getting reinforced. Further, if the other pigeon is hidden away in a separate chamber and another key is set up which opens the door to the chamber so that the pigeon can be aggressed against, the pigeon on extinction will cross to the other side of the box as soon as extinction sets in and start to peck at the other key, which then exposes the other pigeon, who is then pecked. Stated otherwise, the opportunity to aggress becomes a reinforcer under such conditions of frustration. This is a very exciting area of research all of whose implications cannot be considered at the present moment, but they do give us pause to think about the effects of frustration and absence of reward upon learning in a confined environment.

The Information Fallacy

Information is supposedly stored in books and in libraries. The reader should somehow learn. If not, there is supposedly something wrong with the book (or the visual aid) or with the child. In actuality, books are pieces of paper, and visual aids are pieces of hardware. There is nothing about them which produces learning. They are simply stimuli and stimuli do not necessarily have any effect upon behavior. For a stimulus to have an effect upon behavior, it must not be inconsequential. Stated otherwise, behavior to the stimulus must be consequential, that is, consequences must occur. An appropriate program using visual aids and books would involve having the material presented, requiring behavior in its presence, and then maintaining that behavior or modifying it through differential reinforcement. The next behavior or the next stimulus should be a step beyond that in accord with the programming procedures we have just discussed.

It is this difference, between stimuli which are just stimuli, and stimuli which are consequential, that explains how one can have the best visual aids and laboratories with no learning or can have excellent scholars produced by one-room school houses with no funds. The trick, of course, is to apply the technology of behavior and its programming so that the visual aids (including books) are made consequential stimuli in a program of education.

The sequence which we have called the behavioral curriculum is not the only type of sequence possible. Another type of sequence is known as the chaining sequence. An example of such a sequence is a rat named Barnaby (Lundin, 1961) who went through a Moorish arch, up a spiral staircase, across a drawbridge, up another staircase, and so on until he came to an elevator, where he pressed a latch, went down five stories, and then pressed a lever five times to get food and five times more and then started on his travels again. In this case, the dynamism maintaining the entire sequence was the reinforcement at the end, namely, the food. The animal was first taught to press the lever. After that behavior had been established, he was trained on the penultimate task. He was put into the elevator; through its floor, he could see the lever. He then learned that if he pulled a latch in the elevator, he would get to the lever. He was then placed before a tunnel whose entrance was barred; through it he could see the elevator. He then learned that to unbar the tunnel he had to engage in behavior; this behavior was reinforced by getting to the elevator, which provided the occasion for pressing a latch, which was reinforced by getting down to the lever, which provided the occasion for pressing it, which was reinforced by getting food and so on for the house that Jack built. Here the order of training is the exact opposite of the chronological order in which the learned behavior runs itself off. The last behavior is taught first and the first behavior is taught last. The sequence is opposed to the systematic sequence which we discussed in the approximation procedures, where one behavior is a prerequisite for another.

Where there are behavioral deficits, it is important to ascertain whether the sequence of behavior is a chained sequence or a systematic sequence. An example of a deficit in chained behavior can be found in certain of our slum areas where the high school diploma, that is, the end of the chain, has no reinforcing consequences. It is not consequential because children who get it are no better off than children who do not get it. Academic behaviors leading to it cannot be sustained. An example of a deficit in the systematic sequence is the deficit of reading. If one cannot read, one cannot later learn arithmetic. If one cannot learn arithmetic, one cannot later learn algebra. Appropriate programming procedures would involve attention to both types of sequences. Often the deficits are intertwined. A child who drops out of school because the ultimate consequence, the diploma, is inconsequential, will also not acquire behaviors while he is a truant that are systematically necessary for further behavior to be acquired. We should realize that there are not only drop-outs from schools, but drop-outs from life as well. There are some children who do not play with other children or do not acquire certain social skills at critical periods in their lives. This deficit may then show up many years later in other areas of social behavior, such as marriage.

Programming educational systems

The school drop-out problem is one which is currently of social concern. For some students, at least, the educational system does not maintain academic behavior. The problem of maintaining such behavior have been overcome by some schools. As an example of how attention to differences between chained sequences and systematic sequences can maintain academic behaviors, I would like to cite a school of architecture I was connected with. Because architecture involves our technology and culture, students interested in architecture start out their undergraduate training with courses in mathematics, physics, languages, history, and other areas, and do not take an architecture course until they are far advanced in the program. By this time, many students will have lost interest and will have dropped out. The last behavior was taught first, in accord with the chaining principle, by the Institute of Design in Chicago, which borrowed many of its principles from the German Bauhaus. The architecture students in this college were started out in architecture. Being freshmen, their interest was greater than their skills. Accordingly, they were given to design houses in a South Seas rain forest, where they did not need electricity and the like. Models of bamboo houses raised on stilts were made out of straws. These were then rendered, exploded and other drawings were made, and the introductory students went on to design cottages. They then went on to more complex houses, and the students discovered that they had to know about things as coefficients of expansion and contraction. This required physics, calculus, and so on. A systematic sequence of courses was then introduced as part of a regular curriculum. Following this sequence, they then went to work again on architectural design. A similar philosophy guided the programs in visual design and product design. The morale of these students throughout was extremely high. They wore the same leather jackets and had the same unkept beards. Many looked like the "beatniks" who drop out of school with regular curricula. Evidently, having "beat" qualities is to be equated with dropping out of school only under certain types of curricula. The appropriate combination of chaining procedures and systematic sequences can insure the prolonged maintenance of behavior. Somebody has commented that one of the first things that should be taught in many professional schools is how to collect the bill.

The application of behavioral technology to the educational system provides a great challenge. Such technology is being applied at the Institute for the training of chimpanzees and baboons. One wonders why it cannot be applied for humans as well. The experimental chambers for these animals provide for considerable freedom, with the animal going to the little red school house on his premises at will. Rather than having a captive audience, the school situation allows freedom. That the animal goes to class when he wills requires the instructors to be on their toes more readily than when they have captive audiences.

We have attempted to apply some of this logic to the teaching of the analysis of behavior itself. Rather than being bald men selling hair restorer, we have put to ourselves the question: "If you know so much about learning, why don't you apply it to teaching your subject matter?" This question underlies our behavioral analysis programmed instruction course. The students in this course thus far have included people from the fields of education (design), physiological psychology, psychiatry, and the domestic field (housewife). The terminal behavior in each case is the ability to apply the experimental analysis of behavior to one's own area.

With the advent of programmed instruction, many agencies with in-house training programs have attempted to have teachers learn programmed instruction. This requires acquisition of a new skill, and takes considerable time. The teacher must learn how to program sentences and blanks. Our approach is somewhat different. The student is confronted with a hanga-file. This is one of those metal skeletons which is put into a file drawer, from which file folders are suspended. A characteristic of file folders is that they are omnivorous. You can put into a file folder a chapter from a book you like, an interesting article that you have just read, an audio-tape, or a movie film. It is to be noted that the unit is not a blank to be filled in by a word, but the unit is the contents of a folder. The special skill of constructing blanks is not required. Each file contains not only the lesson material, but also specifies at the end of each folder some required behavior. The behavior may be to answer specific questions, to apply the information to one's own area, to run an animal in a laboratory, and so on. It is the sequence of behaviors rather than the sequence of course contents that defines the program. Thus, we believe that we are putting a behavioral interpretation on the progressive education statement that "we are interested in teaching the child rather than the subject matter"; stated otherwise, our concern with the course is the sequences of behavior rather than the sequences of pages we have put in. The material we have put in serves only the purpose of altering behavior. This provides us with a behavioral definition of knowledge, namely, the ability to engage in behaviors that one was unable to engage in before.

The student goes through this course at his own pace. He can withdraw the contents of the folders and go to a special study booth. The folder may on occasion also direct him to the laboratory or provide him with a film which he views on his own. When the student has gone through a certain number of folders, a discussion with the instructor is programmed, or a seminar. The student also keeps a log of his activities, recording time-in and time-out. His notes are considered to be data. This active record which is kept provides us with feedback as to whether or not we are being successful, and also allows us to change the material, the sequence, or the behavioral requirements. The student himself can observe his own progress; indeed, at one point he is directed to look over his own progress and ascertain for himself when he learned and did not learn well and note the relations between these and the program.

Having gone through the course, the student can now be told that he is to set up a course in his own area in a similar manner, utilizing the flexibility of the form, the recording procedure, as well as applying the analysis of behavior to his area.

We are currently also attempting to adapt this procedure to mass education. If programming is to be applied to mass education, it will have to be done within the constraints of the current educational system. It must not be so precious that it requires extraordinary dedication or heroism, i.e., having the instructor spend six hours a day on the course. Applying the definition of learning to the educational system itself, requires consideration of (1) the initial teaching behavior of the system, (2) the required terminal teaching behavior, and (3) the program. The terminal behavior is, of course, a programmed course. The initial behavior which is found in almost all schools is of course, the lecture method. We are currently under contract to start with the lecture of an instructor in their natural ecology, namely, the classroom. The instructor will carry on as usual, but will give out his notes in advance; the lectures will be taped, and the notes revised. Each lesson will include some behavioral requirement. This is a difficult task, since the instructor must now ask himself with regard to each and every lecture: "What behavior am I trying to change with this lecture? How does this relate or fit into the program of behavior, and how does it relate to the student's terminal behavior?" The terminal outcome for the programming staff, in contrast to that for the student, will be, of course, a programmed course. The modeling program is one which we are working on right now and we are fortunate to have a team consisting of Mr. Harold L. Cohen, the Chairman of the Design Department at Southern Illinois University, Dr. Charles B. Ferster, and myself working on this task. In one sense, we are attempting to develop a new definition of the profession of educational psychology and a new type of educational psychologist. This is a person who can work with an ongoing instructor and try to help him shift his lecture course into a programmed course. We are making extensive use of visual aids and other design materials and the technology now generally known as educational media. These media are being turned into a program which seeks to maintain educational behavior and to define it in a dynamic rather than a static manner.

The Operant Paradigm

Operant behavior is behavior whose form or rate is governed by its consequences; it is behavior which changes its environment. Obviously, much of what is called cognitive learning can be described by this model, examples of which we have given throughout this talk.

The basic paradigm for operant behavior is as follows:

1. The behavior. -- This requires the specification of what behaviors are required at every point in the program, and the logical progression of such behaviors to the ultimate terminal behavior. In the case of education, this requires a behavioral definition of the knowledge being transmitted.

2. The contingencies. -- These are the consequences, both reinforcing and aversive, which are made contingent upon behavior in an explicit manner.

3. The deprivational variables. - These are the variables which make a contingency effective in the maintenance of behavior. For example, to make food a reinforcer, the animal is deprived of food. To make money a reinforcer, we can be deprived of money. On the other hand, we can be presented with items on which to spend money. In one of the tropical countries where little effort is required for the good life, an American fruit company was able to get people to work for money (that is, to make money a reinforcer), by presenting them with a Sears-Roebuck catalog. These variables are what are often described as motivational variables.

4. The discriminative stimuli. -- These are the stimuli in whose presence or absence consequences are attached to behavior. Examples are the red and green lights of traffic control, words in books, and the like. It should be noted that these stimuli are discriminative stimuli, that is, they convey

information and control behavior, only to the extent that differential consequences are attached to behavior in their presence. These stimuli include not only words, texts, and information, but also include instructional stimuli whose control over behavior is also contingent upon consequences attached to the behavior, as exemplified by the Army adage of "Never given an order which you are not prepared to back up." Otherwise the orders cease being effective. As long as there is no back up of this kind for behavior in the presence of books, there is no information in books, merely words.

5. The constant stimuli. -- These are the normal constraints and the ambient stimuli in whose presence the entire program is established. Disturbing these stimuli often leads to disruption of behavior, described in common sense terms as distraction. Although all patterns of behavior can be disturbed by changes in these stimuli, they can be quickly reacquired if the contingencies are not changed. It is a common observation in mental hospitals that when patients are shifted to a new ward, their behavior often temporarily improves. That the improvement is only temporary indicates that they are coming under the control of the old contingencies, and that it is the mental hospital contingencies that may be maintaining the abnormal behavior.

In addition to the information fallacy which we have just discussed, another fallacy is that a stimulus-is-a-stimulus-is-a-stimulus. In operant research, the stimulus owes its definition not to any of its static properties but to its relation to behavior and its consequences. A stimulus which is topographically the same can have different relations to behavior depending on whether it is used as a consequence of behavior, a discriminative stimulus, a constant stimulus, or a motivational stimulus. Let us examine visual aids and other educational media in accord with this paradigm. Space precludes it, but it would be interesting and illuminating to consider architectural space and structure in this manner, not only in terms of the flexibility they allow for behavioral processes, but in terms of architectural space and structure as reinforcers, discriminative stimuli and deprivation variables, constant stimuli, and behaviors. The relation of architecture to behavior is one of more elaborate mystiques today; a dynamic analysis might prove fruitful (cf. Cohen, 1964).

1. The use of visual aids as a reinforcer. -- A visual aid can be a reinforcer in at least three ways. It can be made contingent upon behavior. This is exemplifiied by the mother who will allow her children to watch television only if they have finished their homework. There is no reason why a good movie cannot be used in this way. In our behavioral analysis course, we are using lectures and discussions with the instructors as reinforcers. Stated otherwise, the student can see the instructor or attend the lecture only if he has done certain work before hand. We know, as Scheherezada capitalized upon, that continuity is a reinforcer. We can interrupt a movie, and make the presentation of its ending contingent upon behavior. Movie houses used serials and episodes to maintain children's movie habits, and the comic strips do

likewise. The visual aid can be used as a reinforcer in yet another way. If the student has done his assignment, at that point he will be able to understand the lecture. When the lecturer speaks on some topic which is not readily understandable, but is understandable only if the student has done the work, such understanding and insight can make the lecture or the visual aid a reinforcer.

2. The visual aid as a discriminative stimulus. -- For the visual aid to be a discriminative stimulus, consequences have to be attached to behavior in its presence. In this case, the child can be given an examination following a visual aid; if he takes notes, he will pass the exam. The visual aid can also be used to suggest other behaviors which have consequences other than examinations. Like a book, it may provide information on how to glue, or how to join wood, for example. The behavior of glueing wood will then be reinforced by having the joints stick together. The visual aids can also be used as instructional stimuli. Instructional stimuli are those which bring the behavior under the control of yet other discriminative stimuli as, for example, instructions on how to read directions. What is being suggested here is that visual aids not be used as merely passive stimuli which mystically convey information. For the visual aid to convey information, behavior must be required in relation to it, and this behavior must then be differentially reinforced and maintained.

3. The visual aid as a deprivation variable. --Here the visual aid is used to make a given reinforcer effective; or, stated otherwise, to motivate the student. This is one of the frequent uses of the visual aid. The continuity case given is one example of using a movie to make a movie reinforcing. It can be used to pose questions, answers to which reinforce the questioning behavior.

4. The constant stimuli. --Where the visual aids are made part of an ongoing program, their introduction will not necessarily be distracting. There has been much discussion as to whether or not schoolrooms should have windows. My tentative statement, based on Azrin's space data is yes, they should. The child possibly should be allowed the freedom of visual escape. The events outside are distracting only to the extent that they are novel and the learning behavior inside is not being appropriately maintained.

5. Educational media as behaviors. --There is no reason why the development of educational media cannot themselves be used as learning behaviors. We all know that one of the best ways to learn is to attempt to teach, and this can be extended to the development of media themselves.

Practice often precedes science, and good practitioners of education will undoubtedly have utilized many of the procedures suggested here. However, by analyzing these procedures systematically, and within the framework of the systematized body of knowledge currently being developed in laboratories of the experimental analysis of behavior, advances in such knowledge can be brought to bear upon the technology and practice of education.

(Dr. Goldiamond's keynote talk - Continued)

Through a behavioral definition of knowledge and through a behavioral definition of complex mental processes, we can specify the terminal behaviors we wish. We can also attempt to harness the technology of behavior to program such terminal behavior. In such technology, the use of educational media, handled as dynamic stimuli in functional relation to behavior and its consequences, can play a significant role in the educational processes.

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THIRD GENERAL ASSEMBLY

Monday, August 17
8:30 a.m.
Presiding: Donald P. Ely

I. The question was raised by Lee W. Cochran whether the delegates wished to publish a "Summary Report" of the 10th Okoboji Conference. After discussion it was moved by Lalime, seconded by Hill, that a Summary Report of the 1964 Okoboji Conference be published. (Moved and seconded that the motion be tabled. In a voice vote, the motion was defeated.) E. Dudley Parsons requested that the original motion be amended to include publishing a five year summary of the 1960-64 Okoboji Conferences. The amendment was accepted. On the question of publishing both a Summary Report of 1964 and a Summary of the 1960-64 Okoboji Conferences, the motion was carried.

II. Co-chairman Brown distributed copies of a consolidation of "Broad Categories of concerns submitted by delegates to the 10th Okoboji Conference". He called for any additions to the "concerns" and letters L, M, and N of the categories were recommended and added. (See below)

The "Broad Categories of Concerns" submitted by delegates were consolidated from all concerns submitted prior to the conference and were edited by the co-chairmen.

A. Learning Spaces for Individual Use
B. Learning Spaces for Groups (Small, "Conventional", and Large)
C. Spaces for Instructional Materials Centers
D. Sources of and Need for Authentic Information (Including Research Information)
E. Scheduling of Learning Spaces
F. *Development of Educational Specifications*
G. Development of Technical Specifications
H. Improving Staff Use of Facilities
I. Needed Research on Learning Spaces
J. Developing a Climate for Acceptance of New Ideas on Facilities
K. Renovation and Adaptation of Existing Facilities
L. What Do You Consider a Good Instructional Media and/or Media Program?
M. What Type of Overall Plan Do We Need to Put Into Practice What We Know About "Learning Space"
N. Communication Theory and Perception Theory and Their Relationship to Learning Space

III. The delegates were then divided into six discussion groups and charged by the co-chairmen to discuss the following:
A. How best to spend conference time
B. Make recommendations on "Concerns"
C. A plan of procedure

(Third General Assembly - Continued)

Note: Adjourned at 9:15 a. m. to small group discussions with instructions to report back in general assembly at 11:15 a. m.

IV. In general assembly at 11:15 a. m., the chairmen of small groups reported, and generally were accepted by the delegates.

V. It was moved and seconded that the conference co-chairmen meet with the chairmen of the small groups during lunch to consolidate reports and plan direction of the conference.

VI. Third General Assembly adjourned.

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FOURTH GENERAL ASSEMBLY

Monday, August 17
1:30 p. m.
Presiding: James W. Brown

I. The consolidated reports of the co-chairmen and the committee chairmen were presented to the conference for consideration. The proposed six (6) areas of study were as follows: (These are a consolidation of the fourteen (14) broad categories submitted on Monday a. m., August 17.)

   A. Learning Space for Individual, Seminar and Large Groups
   B. Spaces for Instructional Resources
   C. Sources and Needs for Information and Procedures Pertaining to Learning Space
   D. Development of Educational and Technical Specifications
   E. Staffing, Scheduling, and Acceptance of Learning Space
   F. Renovation and Adaptation of Existing Facilities

II. After discussion it was moved by F. Noel and seconded by Gillingham that the conference adopt the above listed six (6) topics as the "Conference Study Topics". CARRIED

III. The co-chairmen then asked the delegates to select one of the six (6) topics they would like to work on during the remainder of the conference. Groups were formed and the General Assembly was adjourned to meet again at 4:30 p. m.

IV. The Fourth General Assembly reconvened at 4:30 p. m. when certain films and publications were recommended and shown. The film "To Build a

Schoolhouse", produced by Educational Facilities Laboratories, was shown and the book "Schools for Team Teaching" was discussed.

V. The Fourth General Assembly was adjourned.

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FIFTH GENERAL ASSEMBLY

Monday, August 17
7:30 p. m.
Presiding: James W. Brown

I. The co-chairman introduced a panel of three learning space specialists to discuss latest trends in planning learning space, including study carrels. The panel consisted of: Charles Gates Beckwith, Sol Cornberg, and Morton C. Gassman.

II. In this discussion, Beckwith presented a series of guidelines for the use and design of an Instructional Materials Center, and the steps an architect goes through in designing a facility to meet a program determined by the educator.

III. Cornberg discussed study carrels and indicated many ways in which they will be used in the future.

IV. Gassman discussed designs of a series of Communication and Lecture Hall Centers. He said "The State University of New York has currently commissioned the design of more than a dozen communication and lecture hall centers. These buildings have capacities ranging from 1,600 to 4,000 student stations. Each contains a variety of lecture halls seating 60, 120, 240, and 480 students. All lecture halls have the capability of multiple rear screen images from 35mm, 16mm and television projectors.

In addition to the lecture halls is the communications center which is the instructional materials production and distribution center of the campus. Television, motion picture, graphics production as well as film, slides, and projection equipment libraries are included in each facility.

The State University of New York has geographically designated four of the above 12 facilities as University Centers, where major production areas will be located. The University Center at Albany has approximately 26,000 sq. ft. of production area and can seat 4,000 students.

The close relationship of the Communication Lecture Hall Center, the Computer Center and the Library, for possible future use in distributing information of stored material, is in keeping with the forward looking objectives of the State University.

(Fifth General Assembly - Continued)

Some of the outstanding architects that are presently engaged in the design of these facilities are: 1. Edward Durrell Stone, 2. I. M. Pei, 3. Richard Snibbe, 4. Edward L. Barnes, 5. Moore & Hutchins, 6. Sargent, Webster, Crenshaw and Folley, 7. Skidmore, Owings and Merrill, 8. Perkins and Will, 9. Ballard Todd Assoc., 10. Fordyce & Hamby, 11. Toole & Angerame.

Elwin Stevens, Assistant Vice President of Facilities, State University of New York, has stated 'The variety of size of the various lecture halls is one solution to the problem of flexibility'."

V. Fifth General Assembly adjourned.

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SIXTH GENERAL ASSEMBLY

Tuesday, August 18
8:30 a. m.
Presiding: James W. Brown

I. The six (6) study committees reported on their progress. All reports were accepted as presented.

II. Jack V. Edling presented a series of sound slides entitled "Room for Learning".

III. Sixth General Assembly adjourned to committee group meetings until 3:30 p. m. Tuesday.

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SEVENTH GENERAL ASSEMBLY

Tuesday, August 18
3:30 p. m.
Presiding: Donald P. Ely

I. Charles Wright gave a presentation on "New Schools in the State of Washington". Included in this presentation was the Ferris High School in Spokane, Washington. It illustrated a campus type series of buildings based on the Trump Plan. It features - no bells, modules, large group instruction (Team teaching), seminars, small group discussions, and individual study stations where the teachers are available for consultation. He also presented

(Seventh General Assembly - Continued)

illustrations of an elementary school where they are using team teaching on grade level. Some of the features in this building were folding walls, work areas, separate play grounds, etc.

II. Wright closed his presentation with a new film, "Team Teaching in Elementary Schools", being released by Bailey Films and produced in one of the elementary schools in the State of Washington.

III. Seventh General Assembly adjourned.

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EIGHTH GENERAL ASSEMBLY

Wednesday, August 19
8:30 a. m.
Presiding: James W. Brown

I. Mendel Sherman, Chairman, Resolutions Committee, requested that all resolutions be in the committee's hands by Wednesday afternoon.

II. Progress reports were made by all six (6) committees, with recommendations that committees now prepare final reports to be presented Wednesday evening and Thursday morning.

III. Dr. Israel Goldiamond was asked by James W. Brown to make a few statements prior to his leaving the conference on Wednesday p. m. The conference delegates gave him a standing ovation for his contribution to the meeting. Dr. Goldiamond responded with a short presentation on a Systems Model using audiovisual materials as an aid to stimulus and obtaining consequential behavior. His charge to the group was to question the type of "experimentation" we have in education, "long term" with children versus "short term" in most psychology experimentation. He also suggested that the group study the problem of "How media can be used in many different ways, and not just as a stimulus."

IV. Eighth General Assembly adjourned to committee action until 7:00 p. m. Wednesday.

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NINTH GENERAL ASSEMBLY

Wednesday, August 19
7:30 p.m.
Presiding: James W. Brown

I. E. Dudley Parsons presented the recommendations from the Future Okoboji Conference Study Committee and moved its acceptance. It was moved that the report be tabled until Thursday morning. CARRIED

II. The co-chairmen appointed the chairman of each of the six (6) study committees to serve as an Editorial Committee to act on all final reports.

III. Reports from Study Committees F, E, C, and D were presented. Certain editorial changes were recommended to the Editing Committee.

IV. Ninth General Assembly adjourned.

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TENTH GENERAL ASSEMBLY

Thursday, August 20
8:00 a.m.
Presiding: James W. Brown and Donald P. Ely (alternating as chairman)

I. Reports were presented by Groups A and B.

II. All of the six (6) Group Study Committee Reports were discussed and were sent to the Editorial Committee for final revisions.

III. It was moved by Blank and seconded by Lake that the tabled report by the Future Okoboji Conference Study Committee be brought to the floor. CARRIED

The report was amended. It was moved and seconded that it be accepted. CARRIED

REPORT OF THE FUTURE OKOBOJI CONFERENCE STUDY COMMITTEE

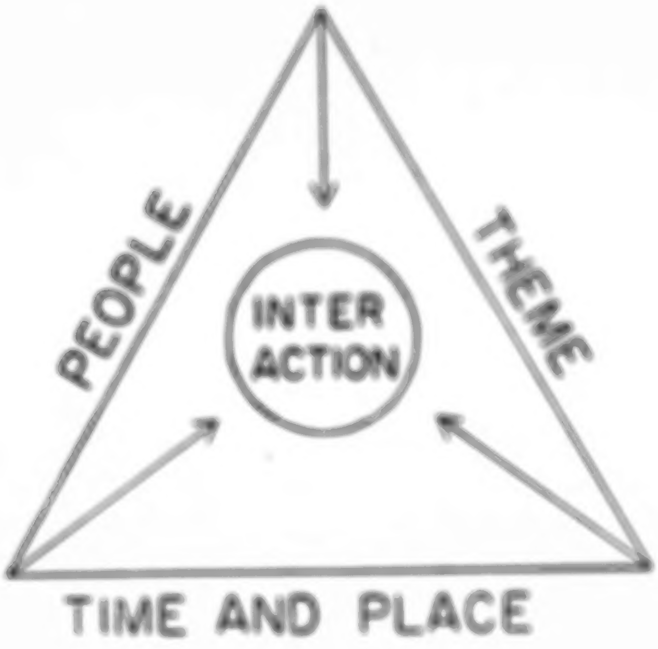
At the conclusion of the Tenth Lake Okoboji Audiovisual Leadership Conference, the participants noted that approximately 350 individuals had attended and taken part in this and the nine previous conferences. Of these, most have returned to positions in which new opportunities for leadership have developed.

Similarly the participants noted that a wide range of topics related to the field of Audiovisual Education had been discussed. Thus the participants were brought into close personal contact with leaders in the Educational Media Field and resource people from related fields of specialization.

Thus in reviewing the activities and outcomes of the ten Lake Okoboji Audiovisual Leadership Conferences we conclude:

A. That a major purpose of the conference is the stimulation of AV leadership in many types of educational institutions widely distributed geographically. The process of stimulation, we believe, grows out of INTERACTION, and has three dimensions: **PEOPLE, TIME AND PLACE, THEME.**

Interaction is the critical examination of ideas, on an intellectual level, in which individuals question, seek clarification, reconstruct and discover new insights. Interaction takes place among PEOPLE which is the first dimension. People with different backgrounds, expert to varying degrees in different fields of knowledge, both teach and learn from one another through the processes of interaction.



Time and place is the second dimension. Effective interaction among people occurs most fruitfully when they are insulated from normal responsibilities and routines. This dimension is found at the Lakeside Laboratory.

The third dimension is theme. Productive interaction does not take place in a vacuum. Therefore, topics important to the AV field have been selected to give substance to the process of interaction. Some topics have been selected because they were of particular concern to the AV field; others because they were at the "growing edge" of education.

(Report of the *Future Okoboji Conference Study Committee* - Continued)

B. Another purpose of the Conference is served by the Summary Report of the proceedings of the General Sessions of the Conference. This report is sent to conference participants and to other individuals at the direction of the conference. The report is made available to interested readers upon request.

In the Summary Report the reader will find the formal presentations of the keynote speaker and the invited consultants. Here, too, are the final reports of the groups who studied the several aspects of the topic of the conference. While these reports may not be definitive pieces of scholarship because of the constraints of time and the interaction process, they do reflect the concerns and ideas of the participants. Thus it is important to emphasize that the reports are working papers and should be so designated when used or quoted.

The conference findings and recommendations provide guidelines for the further discussion and study of the several themes.

In view of the preceding statements, the Future Okoboji Conference Study Committee advocates the adoption of the following recommendations:

A. That the Lake Okoboji Audiovisual Leadership Conference be held again in each of the next three years.

B. That the Iowa Committee - Lee Cochran, Chairman - seek financial and sponsorship support for the conference, and for the editing and publication of a second five year summary of the 6th to the 10th conference.

C. That the participants be selected, by invitation, so as to represent (1) academic fields of specialization related to the topic under study in any particular year; (2) the national audiovisual leadership; (3) participants of the immediate preceding conferences; (4) individuals with leadership potential who are active in organizations affiliated with DAVI; (5) representatives of other organizations as may be appropriate from year to year; and (6) representative outstanding graduate students in the Educational Media Field.

D. That the President of DAVI appoint a Planning Committee to prepare for the next conference.

COMMITTEE MEMBERSHIP:

Robert de Kieffer, Chairman
E. Dudley Parsons, Vice-Chairman
Vernon Gerlach
Horace Hartsell
Mendel Sherman

* * * * * *

(Tenth General Assembly - Continued)

IV. Mendel Sherman, President of DAVI, appointed the following persons to serve on the 1965 Okoboji Conference Planning Committee:

Curtis P. Ramsey, Director, Learning Resources Center, George Peabody College for Teachers, Nashville, Tennessee

Thomas E. Miller, Teaching Aids Laboratory, 1080 North College Road, Columbus, Ohio 43210

Frederick A. White, Bureau of Audiovisual Instruction, University of Wisconsin, 1312 West Johnson Street, Madison, Wisconsin

Harold Hill, Vice President, National Association of Educational Broadcasters, 1346 Connecticut Avenue, Washington, D.C. 20036

James Page, Assistant Director, Program Development, Audio-Visual Center, Michigan State University, East Lansing, Michigan

Sol F. Kotlin, Director, Learning Laboratories, Florida Atlantic University, Boca Raton, Florida 33432

Gordon Black, Associate Professor, Indiana State College, Terre Haute, Indiana

Robert Gerletti, Director, Division of Audiovisual, Los Angeles County Superintendent of Schools, 155 W. Washington Blvd., Los Angeles 15, California

V. Lee W. Cochran requested the delegates to designate the number of persons from the 1964 Okoboji Conference that could be voted to return in 1965. Moved by Clemens and seconded by Gerlach that ten (10) persons from the 1964 Conference be elected to return next year. CARRIED

Clarification as to whose names should be placed on the ballot to be voted back was requested by Lee Cochran. Moved by Hill and seconded by Gerlach that all names attending this year's conference be placed on the ballot. CARRIED

It was recommended that a ballot be prepared in early September and sent to all delegates. Delegates would vote on the ten (10) persons who they wanted to have returned to the 1965 Okoboji Conference. (Note: Since the Planning Committee for 1965 are invited when appointed to serve on the Committee, their names will be listed but not voted on. All DAVI officers also receive automatic invitations and will be listed but not voted on by delegates.

VI. Lee Cochran requested information as to the delegates wishes regarding the desirability of Okoboji delegates, from all previous years, meeting at the DAVI Convention in Milwaukee, Wisconsin, in the spring of 1965. Moved and seconded that a meeting be planned in Milwaukee. CARRIED

VII. Proposed topics for the 1965 theme were listed and delegates were asked to vote on three (3) topics.

The vote on the individual topics was as follows:	Votes
A. Administration (organization and management) of Media Programs	4
B. Media Program Financing	1
C. Manpower Requirements in the Media Field	26
D. The Okoboji Conference - Its Future on Development of Leadership	21
E. Communication Theories and Use of New Media	3
F. New Educational Media - Definition and Technology	2
G. Writing Educational Specifications	3
H. International AV Field	3
I. A Systems Approach to Education	5
J. The Basic AV Course	21
K. Teacher Re-Education and Media (In-Service and Re-Informing)	29
L. Role of Media Specialist in Curriculum Development	10

VIII. Mendel Sherman, Chairman, Resolutions Committee presented the Committee Report and moved its acceptance. CARRIED

RESOLUTIONS COMMITTEE REPORT

The following resolutions have been prepared by the 1964 Resolution Committee and are presented for your consideration:

A. The members of the 10th Lake Okoboji Audiovisual Leadership Conference hereby express their sincere appreciation for the hospitality of the University of Iowa at the Iowa Lakeside Laboratory and the co-sponsorship of DAVI. Gratitude is expressed to President Howard R. Bowen; Robert F. Ray, Dean, Division of Extension and University Services; Lee W. Cochran, Director, Audiovisual Center; John R. Hedges, Associate Director, Audiovisual Center; Glenn Daniels, Lida M. Cochran, LeRoy Simonson, John Haack, David Little, Robert Paulson, Robert Long, and to other members of the Iowa Committee. The members also express their appreciation to Dr. and Mrs. Richard V. Bovbjerg, Mrs. Ardys Holte, to Mrs. Bessie McKinstrey, and to all the Iowa Lakeside Laboratory personnel.

B. The participants extend their grateful appreciation to the Board of Directors of Teaching Film Custodians, Inc., for helping make this conference possible. They note, in addition, that the present conference completes a full decade of their generous support of those leadership conferences.

(Resolutions Committee Report - Continued)

C. The members extend their thanks to co-chairmen Donald Ely and James Brown, as well as members of the Advisory Committee, for their able leadership and guidance throughout the conference.

D. The conference extends its appreciation and thanks to Dr. Israel Goldiamond, Executive Director, Institute of Behavioral Research, Forest Glen Lab, Silver Spring, Maryland, for presenting the keynote address and providing consultant services during the conference.

E. The conference extends appreciation for excellent graphic arts services to David Little, and for typing and duplicating service to Ann and Gene Clark and Willieanna Hartsell.

F. Members of the conference commend the dining hall staff consisting of Mrs. Mary Tripp, Mrs. Marie Goodwin, Phyllis Holst, and Don McDorman.

G. The conference has been greatly enriched by the presence and viewpoints of the gracious lady from Puerto Rico, Mrs. Elsie de Martinez.

H. It is recommended that reports of this conference be sent to members of the Board of Directors of DAVI and the Executive Committee for use at their discretion by any committees or commissions who are concerned with the topics and deliberations of this conference. It is further recommended that reports of this conference be sent to the state DAVI organizations and other audiovisual groups for appropriate use.

I. It is recommended that our appreciation be extended to Editor-in-Chief, Leone Lake, for her continued inspirational work on our conference newspaper for the fourth successive year. Our thanks go also to Gordon Blank, David Little, and Richard Nibeck.

COMMITTEE MEMBERSHIP:

Mendel Sherman, Chairman
Jack Edling
William Prigge

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IX. David Guerin, Chairman, Editorial Committee, presented the final reports of the six (6) study committees, and recommended the reports should appear in the final Summary Report in the following order: Committee D, C, B, A, F, and E.

FINAL COMMITTEE REPORTS AS REVISED:

GROUP D

August 20 1964

PRELIMINARY CURRICULUM & SPACE CONSIDERATIONS BASED UPON A BEHAVIORAL ANALYSIS APPROACH

I. Rationale

A. Preface. As educators we are concerned with the improvement of t quality of educational opportunity for all children and youth. We ar concerned that educational opportunity is not, in fact, equal for all; that large segments of our population are exposed to great variatio in the quality of our educational system. Too frequently, significa segments of our society do not participate equitably in the fruits of prosperity, and become alienated from that society. Thus, our ent society suffers. However, because social ills are not necessarily exclusive domain of the school, coordination and cooperation betwe all social agencies becomes ever more imperative.

Rapid changes in our society such as trends toward technology and knowledge explosion place even greater than usual demands upon th educational enterprise for new student behaviors. There is a grea need for more social skills, broader knowledge and cognitive skill deeper interpersonal relationships and more personal sensitivity exhibited by our graduates. These acquired skills have one thing i common: They are observable behaviors, and/or can be describec in behavioral terms or have behavioral consequences.

B. Behavioral Change. Although many factors, forces, and events do lessly enter into the learning process, we are limited by what we c see and observe. Our definition of learning is limited to the proce of behavior or of behavioral consequences. These behavioral outc are the result of a sequence of behaviors which might be specified a behavioral curriculum.

These "units" in the behavioral sequence are under the direction o the teacher and the proper scheduling of these behavioral inputs increases the likelihood of optimum behaviors. Part of the teache responsibility includes environmental variables which can be direc and controlled to produce and/or mediate certain behaviors. Com nications media are a part of this environmental control, but must chosen and utilized in light of the students' previous experiences a behaviors.

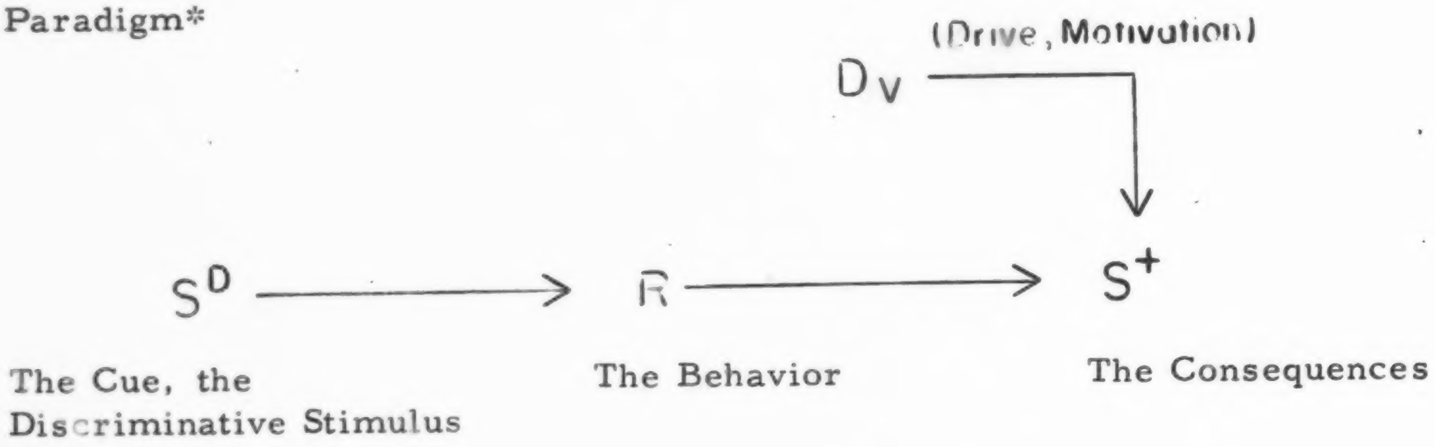
To have an appropriate behavioral effect, media should not be util passively. Consequences should be attached to the use of these m so that behavioral outcomes can be specified by the teacher. Mate should be utilized in such a way that the effect is not inconsequential to the learner. Many stimuli are no more than distractions - a novel stimulus of no consequence to the student. Learning is behavior that relates the learner and the environment - the learning space.

II. Criteria for Development and Design

A. Socially acceptable behavior is always sought
B. Learning spaces should be utilized as a part of motivational procedures to facilitate the shaping of the desired behavioral outcome.
C. Unfavorable change (stimulus) in the environment creates either escape phenomena, or aggressive actions. Thus, stimuli must be used only when predictable consequences are known by the educator.
D. The learning space must be designed to provide the possibility (indeed the freedom) for the learner to remove himself from one environment to another.
E. A variety of learning activities should be provided for, so that the learner has desirable consequences to choose from; choices should be contingent upon successful completion of the specified learning activity.
F. Learning (behavioral) consequences should be established to the extent (and reinforced to the degree) that the learner again will choose these activities or select these options, when a choice is available.
G. Desired behaviors, ideally, also should be consequences, so that learner "satisfaction" occurs, and so that chaining of behavioral sequences is possible. Since the environment can be both a consequence and a cue, the environmental use must be specific and programed to encourage and maintain elicitation of the desired behavior.

H. The New Educational Media (as a part of the learning environment) may serve two functions:
    1. Direct instruction
    2. Reward and/or reinforcement for desired behavior

III. Paradigm*



*Based upon summary remarks by Dr. Israel Goldiamond

The behavior desired (R) can occur only when the S^d is presented while the D_v is present in the situation, and as the S^+ is a desired consequence of the R. In this case, the S^+ becomes a new stimulus thus prompting further Rs.

All S^d, in addition, occur within a series of constraints inherent in the environment.

$$\underbrace{S^D}_{S_sc} \xrightarrow{(S_sc)} R \longrightarrow S'$$

An educational film, slide, etc., says something	Criterion Behavior	Desired Consequence
Establishes conditions for a specified activity	Behavior as a part of the curriculum	1. Reward - sees movie or slides if specified activity is completed 2. Cognitive - Understanding of media presentation occurs only if specified activity has been completed first.

IV. Behavioral Consequences

In considering "Learning Space and Educational Media in Instructional Programs", certain behavioral consequences must be defined and sought. These behavioral consequences derive from the cultural setting and experience of the individual. Among the several behavioral consequences we seek to achieve are:

A. Facility in the communication arts
B. Productive and economic competence
C. Pride and personal integrity in the job to be done
D. Ethical and moral living
E. Aesthetic appreciation
F. A sense of the purpose and responsibilities of self

(Group D - Final Revised Report - Continued)

- G. Responsible membership in society
- *H.
- I.
- J.

V. Development Design

Before we can consider in a precise fashion the use of space and media for learning, it is necessary to understand their relationship in the development of the total instructional program. This relationship can best be understood by total staff consideration of the major steps in curriculum design:

- A. Agreements on broad educational goals
- B. Description of these goals in terms of desired observable behaviors
- C. Analysis of the desired observable behaviors in terms of component observable behaviors
- D. Programing content, experiences, procedures in an appropriate sequence to obtain the desired behaviors and programing in the learning space and media to implement and support this sequence
- E. As an illustration:
  - Step 1. Agreement on broad educational goals
    - a. Economic efficiency
    - b. Self-realization
  - Step 2. Description of these goals in terms of desired observable behaviors
    - a. Civic responsibilities - Intelligent voting practice
      - (1) Expresses concern about matters of politics
      - (2) Tests accuracy of important information
      - (3) Joins and participates in civic organizations
      - (4) Discriminates between and among relevant and irrelevant campaign issues
  - Step 3. Analysis of the desired observable behaviors in terms of component observable behavior
    - a. Seeks out accurate sources of important information
    - b. Listens to and views news analyses on radio and television
    - c. Seeks out opposing points of view
  - Step 4. Programing content, experiences, procedures in an appropriate sequence to obtain the desired behaviors and programing the learning space and media to implement and support this sequence

VI. Implications for Learning Space Design

A. Rapid Behavioral Reinforcement Capability

For efficient learning it is necessary to provide for rapid reinforcement of desired behavior when it occurs. (Immediate knowledge of results via programed instruction - Electronic classrooms.)

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*The above lists and those to follow are suggestive, not inclusive. Add to them.

B. Single and Plural Capability
Systems should provide the capability for usage by an individual learner, or by large groups of individuals.

C. Teacher and Learner Choice
Systems should be programed to allow for a choice from a variety of materials, media, subjects, or achievement levels.

D. Achievement and Progress Evaluation Capability
Systems should provide for rapid access to information, and evaluation of these data such as the capabilities of a student response system and/or computer-based information storage and retrieval systems.

E. Physical Comfort Variability
Learning spaces should provide for control of significant physical comfort variables, both for comfort reasons and to enhance specific learning situations. (Temperature, light, color, fresh air)

F. Social Interaction Capability
These are areas and furnishings which by their very design enhance the development of social skills. (Lounges, campus-type schools, house-type schools, upholstered furniture.)

G. Stimulus Intensity and Quality Variability
Specified behaviors may be more easily shaped through the deliberate control of environmental variables. (Color, music, carpeting, intensity of light)

H. Multi-sensory Capability

I. Space Allocation and Reallocation Capability

J. Learning Conditions Specificity
Certain spaces and media serve to shape and condition behavior. Thus, the environmental qualities and spaces should be allocated and utilized exclusively for specifically determined behavioral outcomes.

VII. Concluding Statement

This committee recognizes the particular difficulty in identifying the learning experience in terms of observable behavior. Behavior can be analyzed, measured, photographed, catalogued, and handled in a variety of ways. Further, it can be discussed and be similarly understood by individuals and groups concerned with its causes and development.

The history of American education has demonstrated an apparent unwillingness to modify or change environmental conditions, materials, and modes of teaching. A lack of teaching success in the classroom is frequently blamed upon the learner, when the faults may very well lie with the teacher, his materials, the teaching environment or a whole range of other unknown variables.

CONSIDER:

Of extreme difficulty is the determination of ways in which a desired behavior can be shaped. Particular behavioral patterns are developed through the senses under particular environmental conditions. It would seem to be a truism that the exposure of a student to an appropriate combination of media, environment and methodology would increase the likelihood of a desired behavior.

Media, environment, and methodology have no inherent characteristics, but take on only the properties we give them. The success of the learning experience is dependent upon the appropriate construction of the consequences we attach to these basic variables.

This committee recommends that the foregoing criteria for desirable behavior, can be most successfully shaped, through experimental variation in teaching method, the use of a wide variety of media, and the controlled variation of environment.

COMMITTEE MEMBERSHIP:

David Crossman, Chairman
Curtis Ramsey, Recorder
Glenn Daniels
Elsie de Martinez
Israel Goldiamond
John Hedges
Stanley McIntosh
Marjorie Ramsey
Betty Noel
LeRoy Simonson
Howard Uhrig

* * * * * *

August 20, 1964

GROUP C

SOURCES OF AND NEED FOR INFORMATION AND RESEARCH PERTAINING TO LEARNING SPACE

I. Present Situation and Associated Questions

During recent years we have begun to see increasing variation in the appearance of school plants and the use of space within such plants. This variation is reflected in the shape and size of buildings and rooms, materials used for construction, light control in innumerable manifestations, and in new service features within the school building and the classroom. A catalog of all the structural and functional innovations taking place in school design would take more time than is available and is not germane to the main purpose of this report. Suffice it to say that schools look different from what we have expected in the past.

Schools look different for a number of reasons. In some instances, learners and teachers are performing differently. New curricular demands, new social imperatives and new views of the learning process all have contributed to changes in scope and sequence of instruction, in class size and grouping, and in learning and instructional procedures.

Secondly, new materials and equipment are available for instructional purposes and some resources previously available in theory only are commonly found in every school plant in the nation. These range from classroom libraries through conventional audiovisual equipment. Although the quantity, quality or design of materials and equipment available, leave much to be desired, one may now expect teachers to have a variety of projection, recording, and playback equipment available on demand within her own building, if not within her own classroom. In addition, television, language laboratories, and self-instructional materials and equipment are being found in increasing quantity, particularly in institutions of higher education and the wealthier school districts.

A third factor which is changing the face and the form of educational facilities is what can be described only as faith in educational innovation. In part, this faith grows from extra-educational sources which will reinforce almost any innovative behavior with grants, publicity, and other prerequisites of the "Leader". In part, it grows from an increasing base of information about learning and communication, coupled with a belief that the school must find more effective and more efficient means of fulfilling its mission to individuals and to society.

Decisions about facilities to implement educational objectives involve a large number of persons and agencies: (a) the lay public, as represented by the school board, parents and taxpayers acting in concert or individually; (b) school administrators, supervisors, and specialists; (c) teachers; (d) consultants selected for their presumptive knowledge; (e) architects; (f) professional and trade associations and agencies; (g) governmental officials at a number of levels; and, on occasion, (h) the learner himself. These decisions are made within the limitations of statutory requirements, fiscal considerations, and the knowledge and prejudices these decision makers bring to bear.

Each of the persons involved in school plant planning is likely to play his role in light of a different body of knowledge and a different set of values from each other involved in the process. The final decision may result from group process without reference to the concordance of existing evidence, from administrative fiat, or in a number of other ways. Decisions on school plant design should be made only on the basis of a systematic review of all relevant information and should reflect the logical or empirical consequences growing from such review. Whether one is concerned with the design or redesign of space, development of specifications, or the use of space, he has need for full information on current practice and verifiable data.

Perhaps there would be value in the development of a series of axioms which would distill all relevant knowledge for school plant planners. This is, however, beyond available resources and the scope of this paper. The committee has neither the bibliographic resources, the substantive knowledge, nor the inclination to assert the distilled truth for educators. Instead, the committee proposes in the remainder of this paper to do the following:

A. To indicate types of information used in planning school buildings
B. To suggest some current sources of information
C. To suggest some characteristics of research and indicate some of the principle variables for learning space research
D. To suggest forms and methods of dissemination

II. Information, Types, Sources and Treatment

A. The questions to be answered prior to making a decision in a given setting are best formulated by those who must decide what a facility will be, but it appears likely that the answers will grow from three classes of information which can be conceptualized as falling on three dimensions:

1. The Content
2. The Format
3. The Permanence

The CONTENT dimension relates to what it is we must know to make a decision: Examples of contents which are required in making decisions are, 1. Technical information, such as that which an architect or other technically trained specialist can provide; 2. Administrative information (e.g. fiscal information, statutory requirements, etc.); 3. Educational information (e.g. instructional objectives, learner characteristics, evidence of instructional effectiveness of the media, etc.)

The FORMAT dimension relates to how the information was collected, its verifiability, etc. Examples of sources of information which are usable are:

1. Experimental evidence
2. Case studies
3. Statistical studies
4. Blueprints, plans, and designs

These are merely illustrative of formats of existing information.

The PERMANENCE dimension relates to the currency of the information. Some information is relatively permanent, and can be used so long as it is not refuted by newer, more relevant data. For example, an experiment on schedules of reinforcement is probably as good today as the day it was first written, even if it is 15 or 20 years old or older. Other information has some periodic usability (e.g. code requirements for construction, population trends, etc.) Such information should probably be reviewed and updated periodically. Still other information is transitory and should be reviewed frequently for revision or deletion. Examples of such short-term information are newspaper accounts, magazine articles, and other information involving progress reports of current developments which, if it has any permanent value, can be expected to be reported in a less evanescent form at such time as its permanent usability is determined.

B. Types of information
   1. Institution-based Research: Research performed by educational institutions and agencies
   2. Surveys: Studies aimed at the analysis and evaluation of an existing situation; usually leading to recommendations for improvement and identifications of future needs
   3. Industry-based Research: Research conducted by or for commercial firms or industrial corporations
   4. Description of Professional Practice: A description of professional procedures, methods, techniques, etc.
   5. Professional Opinion: The presentation of an interpretation, evaluation, etc. by an authority in the field
   6. Commercial Publicity: Presentations of materials, equipment, systems, etc. for the purpose of commercial promotion; advertising
   7. Plant layouts: Floor plans, blueprints, working drawings, architects, models, etc.

C. Sources of information
   1. Governmental Agencies
      a. U. S. O. E., Educational Research Information Center, (ERIC)
         (1) Educational Facilities Clearing House
         (2) Comparative Education Clearing House
         (3) Higher Education Clearing House
         (4) Others
      b. State Departments of Education
      c. National Institute of Health
         (1) Isolation studies
         (2) Environmental studies
         (3) Child Development Center
         (4) Other
      d. National Bureau of Standards
      e. Building Research Advisory Board (BRAB)
      f. National Science Foundation
      g. Department of Defense
      h. N. A. S. A. - Institute of Behavioral Research
      i. Others
   2. Professional Educational Organizations
      a. National Education Association (including all relevant departments)

- b. National Council of Schoolhouse Construction
- c. Association of School Business Officials
- d. National School Board Association
- e. University Council on Educational Administration
- f. Phi Delta Kappa
- g. National Association of Educational Broadcasters
- h. Others

3. Other Professional Organizations
   - a. American Institute of Architects
   - b. Illuminating Engineers Society
   - c. Building Research Institute (BRI)
   - d. Society of Motion Picture and Television Engineering (SMPTE)
   - e. American Sociological Society
   - f. Others
4. International Organizations
   - a. UNESCO, Paris, France
   - b. Ministry of Education, London, England
   - c. Bouwcentrum, Rotterdam, Netherlands
   - d. International Center for School Building, Lausanne, Switzerland
   - e. Ministry of Education, Ontario, Canada
   - f. Others
5. Trade Associations
   - a. National Institute of Manufacturers
   - b. Chamber of Commerce
   - c. Carpet Institute
   - d. Lighting equipment manufacturers
   - e. Better light, Better sight
   - f. National Audio-Visual Association
   - g. Others
6. Foundations
   - a. Educational Facilities Laboratories
   - b. Ford Foundation
   - c. Mott Foundation
   - d. Others
7. Colleges, Universities and Research Organizations
   - a. Research Centers
   - b. Colleges or Dept. of Education, Architecture, Psychology, etc.
   - c. Others

D. Collection, codification, and dissemination scattered information, i.e., unpublished or limited copy documents

1. Collection
   - a. Producers of research and information must be informed as to centers of information, dissemination, i.e. the how and where to submit materials

b. Assimilation systems requires established communication lines through universities, state departments, national organizations, etc.

2. Codification
   a. Information storage and retrieval systems
   b. Taxonomy of terminology for professional areas; i. e. identification and definition of terms
3. Dissemination
   a. Retrospective Searches (one time searches by an information service of all information relevant to a quiry)
   b. Current awareness searches (periodic searches on a question as a follow-up to a retroactive search for an inquirer)
   c. Providing information to specific professional inquires

III. Characteristics and Principle Variables for Learning Space Research

Decisions for the design and use of educational facilities should be based on adequate information. In simplest form this information may consist of narratives of experience or practice, or the description of a set of conditions in numerical or other operational terms. In the final analysis, however, information of general utility is generated best when the field of study is clearly delimited, the phenomena to be studied are clearly described, the phenomena are observed under conditions of control which permit attribution of effects to the phenomena, and the effects described in terms amenable to unequivocal interpretation and reproducibility. This, briefly, is scientific research. Such research can be used simply to describe a given set of conditions, or if properly conducted, can permit the drawing of inferences about the relationship of that set of conditions to a more general problem.

Although some research is pedestrian, it can be one of the most creative of human endeavors. The creativity of the researcher must operate within restraints imposed by the state of the art, and by his own professional skill and integrity. Research may be concerned exclusively with the search for absolute, unapplied truth. The researcher may, however, be concerned with verifying the effectiveness of a device, a treatment, or a condition, or he may be concerned with determining the relative feasibility of alternative courses of action. In any case, his success or failure depends largely on the rigor with which he conducts his investigation. "Action research" is a worthy endeavor provided it involves systematic research as well as action.

The reader of this report may wish to conduct broad, generalizable research; he may wish to conduct "tight little studies" for limited use; or he may merely wish to be a consumer of research results. But if he has use for research in planning educational facilities, he must deal with certain common issues. These are:

A. Those elements or variables which may be controlled or manipulated to determine their effects. Our presence here expresses our interest in the variables for study regarding educational facilities. It is important, however, that these variables be considered from the standpoint of:

B. The goals to be attained. Since we are discussing educational facilities the main focus must be on educational goals. The development of some usable or reliable measuring device is needed to see whether the application of the variables to the goals lends to:

C. A pay-off which permits us to decide whether our use of the variables was appropriate, needed, or desirable. Just a few examples of evidence of pay-off in educational facilities research are improved learning, decreased cost of operation or construction with no loss in learning, or greater acceptance of the facility by its users. In the final analysis, however, it is the man who asks the question who must decide what reflects adequate pay-off. The goals with which the inquiries is concerned, and the evidence of pay-off which he will accept are determinants of the:

D. Strategy of research he will use. Sometimes, he must work under laboratory conditions, sometimes in the field. In other cases he may not collect data, but simply manipulate data which are already in existence. Each of these involves a different research strategy.

The following discussion will deal in detail with the variables of research on effective learning spaces. After that, there will be some discussion of research strategies for study of learning spaces. In this discussion, the questions of goals and pay-off will be considered.

Variables

Antecedent to the conduct of research on the utilization of research findings is the identification of the variables involved. Variables which may be determinants of learner behavior include the following:

1. Learner variables - Learners differ with respect to such things as age, subject matter, achievement, motivation, aptitude, etc.
2. Socio-cultural variables - Behavior may occur under differing social conditions, such as a competitive, co-operative, democratic, or an autocratic climate, a large or small group, etc. It may occur under cultural conditions which differ with respect to such factors as language of the learner's home, learner's exposure or lack of exposure to mass media of communication, etc.
3. Variables in the effective immediate environment - Such factors in the learner's physical environment as location, temperature, sound attenuation, color, etc., may affect behavior. The stimulus characteristics of the communication media, such as teacher, AV equipment, etc., may have a relationship to changes in the learner's behavior. Response modalities, such as bar pulling, button pressing, underlining, or speaking, to mention only a few, are components of the communication media which may exert a stimulus control over the learner's responses. Task

variables, including such variables as those which mediate the terminal behavior, are also included in this wide classification.

Strategies

Research may be experimental. Often conducted in a laboratory setting, but always in tightly controlled situations, this type research is concerned with hypothesis testing. Findings of such research attempt to answer the question, "What effects occur under what conditions with what probability?" Independent variables are described and controlled. Behaviors are observed, classified, and categorized (parsimony). In researching in the area of school facilities, we must, therefore, address ourselves to the problem of empirically defining those variables in the learner's effective environment which are the determinants of specific behaviors or classes of behaviors. These determinants or main effects may be observed singly, in multiples, or in more complex interactive relationships. Dependent variables, though commonly learner behaviors, may include efficiency (time), cost, acceptance, etc.

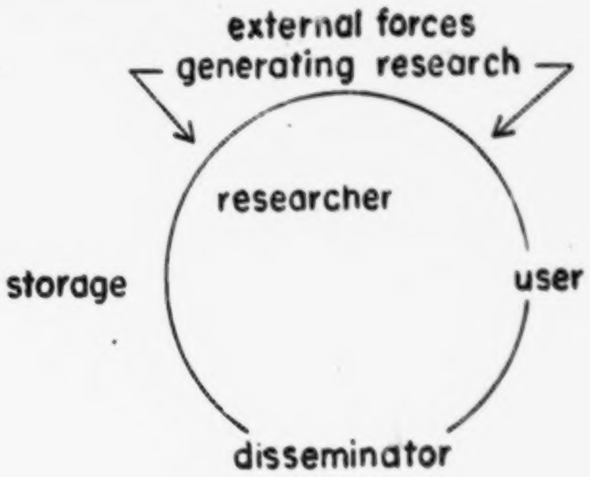
Field research offers the investigator little or no opportunity to manipulate the variables. Instead, he observes, classifies, and categorizes existing variables, observes the effects of these variables, and attempts to establish relationships between the two.

Research in the area of facilities, if it is of any value, should ultimately shape behaviors relating to design, construction, and utilization of learning space. A third research strategy, then, is concerned with assessing the role of research as a determinant of these kinds of behavior.

Finally, a synthesis of experimental research, field research, and research on research should provide the guidelines for programing the next decade of research on learning space.

IV. Suggested Form and Methods of Dissemination

The 1959 Okoboji Conference on Research paid special attention to the dissemination of research in the general field of Audiovisual Communication. Although the basic nature of research dissemination dealing with learning space is fundamentally no different in process from other areas of concern, the increasingly pressing "need to know" is exemplified by the mushrooming increase of space construction. More effective and efficient systematized dissemination of learning space research is needed. The dissemination problem involves the following interacting components:



DISSEMINATION FLOW

A. Researcher to researcher
B. Researcher to storage
C. Storage to disseminator
D. Disseminator to user

A. Researcher to Researcher
Researchers need to be informed of parallel activities. The interchange of relevant information can be accomplished by at least two means.
    1. Increased use of research seminars might avoid unnecessary duplication
    2. Educational researchers need to develop methods of exchanging information. A system such as that developed by the military C. A. T. E. project is an example of such interchange. This is a system of postcard exchange involving appropriate code words to identify areas of activities.

B. Researcher to Storage
(Storage refers to efforts to protect, house and catalog information)
    1. Research is frequently not reported to proper agencies for effective dissemination.
    2. Proper agencies may not exist, may not make their services known or may be inadequate to cope with user requirements.
    3. Research reports, to be effective, should be in formats appropriate to the user. Format is interpreted so as to include a variety of media; film, tape, etc.

C. Storage to Disseminator
Information is often made available through intermediary agencies. These agencies compile information from various sources.
An agency may be:
    1. Recognized field leaders who have frequent exposure to prospective users

2. Professional associations, governmental agencies, etc., through their publications and activities
3. Publishers of popular magazines and other mass media. These have increasingly important influence on both general as well as particular readers. Often this is the only source of contact with relevant information

D. Disseminator to User

The user may receive his information from any or all of the sources identified. Disseminators should direct report materials to specific audiences. These might include:

1. Researcher looking for areas in need of investigation
2. Media specialist
3. Potential sponsors of research
4. General public
5. School board members
6. School administrators
7. Architects

Members of these categories will have varied sophistication with respect to the interpretation of data. This sophistication should determine format.

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Vernon Gerlach
Paul Messier
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GROUP B

August 20, 1964

LEARNING SPACE FOR INSTRUCTIONAL RESOURCES

The report which follows has been drafted in five sections as follows:

I. Purpose, Procedure, Rationale
II. Definitions of Terms Used
III. Listing of I. R. Program Functions
IV. Sample Matrix
V. Sources of Information

I. Purpose - Procedure - Rationale

A modern instructional resources program may incorporate the full range of modern communications technology including printed, photographic, graphic, and electronic media. While persons and places are sometimes defined as instructional resources, in order to delimit the area of responsibility and avoid confusion these are not considered in the following report.

This report refers specifically to recorded and broadcast media embracing those materials usually referred to as instructional materials and to equipment related to their use. In addition to these items computers are also included as they are now or may in the future be employed for instruction, information processing, and control.

In its study of the problem, the committee developed and worked to answer the following questions:

A. What are the primary functions of an Instructional Resources Program?
B. What spaces are required to carry out these functions?
C. What information is currently available to help identify and design such spaces?

As a rationale for its work, the committee acknowledged that optimum conditions for learning are present only when provision is made for effective use of the full range of instructional resources. Effective utilization requires that proper types and amounts of space be allocated for specific functions. To achieve this goal, a grid or matrix approach was developed which might be used by an administrator to help describe the instructional resources program of a given school, college, or educational system in his discussion with architects, designers, and other consultants.

It is the opinion of committee members that the recommendations advanced herein have these values:

A. They define the scope of an instructional resources program in a manner which has implications not only for the design of space, but also for professional education, administrative arrangements, etc.
B. They put forward, at least in a skeletal form, a check list of major planning factors, a check list which it is hoped DAVI, or some other suitable organization, may one day refine and publish in some appropriate form and place.

II. Some Brief Definitions of Terms Used as Matrix Headings

Function: Itemization of the kinds of activities carried on in the Instructional Resources Program
Type: Kind of space
Capacity: 1. Personnel - Number of occupants
  2. Equipment and materials which go into the space (furniture and special equipment)
Proximity: Relationship to the other functions and areas to total plant

Control	Degree of security required
Special Requirements	These unique conditions (performance specifications) such as special power, plumbing, ventilation acoustics, lighting, humidity, surface treatment, etc.
Remarks	Any other needed clarification

III. A Sample Listing of Instructional Resources Program Functions

It is the intent of this report that recognition be given to the fact that the following listing of activities is not by any means complete. It rather points out areas that administrators might take into consideration in the planning stages. It is also recognized that individual functions may vary between school districts.

Production

Photographic
1. Still
    a. 2 x 2 and 3 1/4 x 4 slides
    b. Study prints
    c. Overhead transparencies
    d. Filmstrips
2. Motion Pictures
    a. 8mm - silent - sound - or single concept
    b. 16mm - silent - sound - loops

Graphics
1. Posters and charts
2. Illustrations (cartoons, diagrams, maps, etc.)
3. Mounting and laminating

Three Dimensional Materials
1. Realia
2. Dioramas
3. Display boards
4. Models and mock-ups
5. Kits

Radio and Television
1. Tape recording - audio and video
2. Discs
3. Broadcast

Instructional Systems
1. Programed instruction
2. Cross-media systems

Printing and duplicating
1. Supplemental tests
2. Workbooks
3. Courses of study
4. Study guides
5. Public relations materials

Distribution

Storage

1. Books and printed materials
    - a. Textbooks
    - b. Library books
    - c. Periodicals
    - d. Pamphlets
    - e. Vertical file
    - f. Professional books
    - g. Professional guides
2. Visual materials (non-projected)
    - a. Flat pictures
    - b. Art reproductions
    - c. Charts
3. Cartographic
    - a. Maps
    - b. Globes
4. Projected
    - a. Films
    - b. Filmstrips
    - c. Slides
    - d. Transparencies
5. Audio
    - a. Tapes
    - b. Disc recordings
6. Programed materials
    - a. Non-machine
    - b. Machine
7. Miscellaneous
    - a. Kits
    - b. Exhibits
    - c. Displays
    - d. Models
    - e. Realia
8. Transient materials
    - a. Films
    - b. Exhibits
    - c. Displays
    - d. Books
    - e. Other
9. Supplies
    - a. Catalogs
    - b. Forms
    - c. Guides
10. Equipment
    - a. Projection
    - b. Audio
    - c. T-V receivers

(Group B - Final Revised Report - Continued)

- 11. Non-material
  - a. Resource person file
  - b. Field trip file
  - c. Inventory file
  - d. Card catalog
- Utilization Areas
  - 1. Listening stations
  - 2. Viewing areas - individual
  - 3. Viewing areas - group
  - 4. Teaching machine area
- Work Areas
  - 1. Library workroom
  - 2. Materials inspection & maintenance
  - 3. Equipment maintenance - minor
  - 4. Equipment maintenance - major
  - 5. Temporary storage
  - 6. Shipping
- Specialized Areas (May not be in I.M.C.)
  - 1. Learning labs
  - 2. Intercommunication system
  - 3. Radio broadcast
  - 4. Television broadcast
- Service Areas
  - 1. Checking in and out
  - 2. Library instruction
  - 3. Operator instruction
  - 4. Scheduling - resource persons
  - 5. Scheduling - field trips

Consultation and Instruction

- Consultation
  - 1. Individual
  - 2. Small group
- Instruction
  - 1. Individual
  - 2. Small group
  - 3. Large group

Demonstration and Display

- Demonstration
  - 1. Individual
  - 2. Small group
  - 3. Large group
- Display

Information Processing and Control (Computer based)

- Data Processing
  - 1. Scheduling
  - 2. Listing
  - 3. Business procedures

Information storage and retrieval
Instructional services (programmed learning)
Training for use of computers
Research
1. System simulation

Evaluation and Research
Development and testing of instructional methods, materials, and facilities
1. Various media or media combinations
2. Various sizes and types of groups
    a. Number
    b. Ability
3. Various physical conditions
Management and operations of program
1. Budgeting
2. Staffing
3. Space utilization
4. Enrollment projections

IV. A Sample Matrix
1. Incomplete (See page 67)
2. Partially completed (See page 68)

V. Sources of Information
(Includes books, pamphlets, periodicals, etc., and a listing of professional associations, societies and organizations, as well as governmental agencies whose work relates to this subject area.)

RECOMMENDATION: It is the recommendation of this committee that these results be directed to the DAVI for further pursuit and development. It is further recommended that the ALA and all other interested groups such as AASA, ASCD, and ALA be invited to participate in this development. This involvement may be in the form of a joint standing committee.

COMMITTEE MEMBERSHIP

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Cass Gentry	Charles Wright

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SPACE REQUIREMENTS

FUNCTION	TYPE	CAPACITY		PROXIMITY	CONTROL ACCESSIBILITY	SPECIAL REQUIREM'T	REMARKS
		PERS'L.	SQ./MT.				

SPACE REQUIREMENTS

FUNCTION	TYPE	CAPACITY		PROXIMITY	CONTROL ACCESSIBILITY	SPECIAL REQUIREM'T	REMARKS
		PERS'L	SQ./MT.				
5. INFORMATION PROCESSING AND CONTROL							
A. DATA PROCESSING e.g. SCHEDULING LISTENING BUS. PROC.	•COMP. COMPTS. ST'F. WK. AREAS STORAGE OF TAPES, etc.						
B. INFO. STOR. AND RETRIEVAL	•DECENTRALIZED SPACES FOR KEYS PUNCHING AND TRANS.						
C. INSTRUCTIONAL SERVICES PROG'M'D LEARNING							
D. TRAINING FOR USE OF COMPUTERS							
E. RESEARCH							

GROUP A — August 20, 1964

LEARNING SPACE FOR INDIVIDUAL, SMALL GROUP, AND LARGE GROUP LEARNING

ASSUMPTIONS UNDERLYING GROUP "A" REPORT

A. The very specific objectives of the teaching-learning process will have been established by the public and its authorities.

B. Once the educational objectives have been established, it is the imperative responsibility of the educational community to see that every child achieves those objectives as efficiently and as fully as possible.

C. The words "teaching" and "learning" when used separately, imply the other. It is our belief that one does not normally occur without the other.

D. The students and school being considered may be at any grade level, and the learning in any area; hence the finer details of the report must be supplied by the reader in terms of the specifics.

E. We believe such ideas as are expressed regarding new (and remodelled) space must be ones which will open new vistas and stretch the imagination and willingness of the decision makers who in any way become aware of such ideas.

INDIVIDUAL STUDY STATION

I. Definition: An individual study station - in the educational environment is a place which permits a reach to maximum resources for learning through technology and systems.

II. Rationale: The value and need for individual study stations is based on the premise that some of the knowledge that students need can best be acquired through unlimited access to programed information. This resource, i. e., the educational program, must be designed to accommodate the self-pacing of the individual student. The study station, as a teaching-learning tool should be available to every student regardless of level or subject matter area as a part of the designed curriculum.

III. Problems and Issues:

A. The number of such stations, in relation to the number of students served, will depend upon the proportion of time required by the curriculum design.

B. Display devices similar to those found in individual study stations may also be available in other areas of the school plant as needed.

C. Cost must be considered in relation to the value of new-found teaching time and efficiencies made possible.

D. Stations may be

1. In large numbers clustered around basic resource areas
2. In small numbers on campus style facilities being associated with departmental resource areas
3. In access spaces between seminar and/or larger group teaching spaces
4. In student social areas and dormitories

E. Acoustical, electrical, mechanical, and electronic well being of the study station have specific criteria for optimum performance.
F. The aesthetic value of the study station is the prerogative of the architect.
G. Technological performance specifications are the responsibility of the educational audiovisual specialist.
H. Operation and maintenance should be placed in the hands of qualified and responsible technicians.
I. Training of teaching personnel for maximum system expectation.

IV. Resources:
Educational Facilities Laboratory, Carrels
Architectural Forum, August, 1963
Educational Executives' Overview, March, 1963
Sol Cornberg Associates, Inc., New York
Ed Read, Brigham Young University, Provo, Utah

V. Research: By the spring of 1965 individual study station techniques will be well underway in approximately twelve educational institutions throughout the U. S. A. Research should be joined with these facilities and their use immediately. (Consult U. S. O. E.)

VI. Recommendations: Educators in general and their professional organizations should proceed with further planning for educational programs and facilities giving due recognition to the available technology.

SMALL AND MEDIUM STUDY SPACES

I. Definition:

A. Small group spaces to do the following:
   1. Seminars
   2. Conferences
   3. Multi-media - where teacher has planned specific instruction by use of a variety of media
   4. Special instruction - teacher directed diagnostic or corrective work
   5. Project activities - to be teacher or student oriented. This area could involve laboratory services for later completion
   6. Multiple functions - for an ungraded specialized area equipped for science activities for a variety of grade levels

B. Medium group space to do the following:
   1. Lecture, presentation, and recitation - - - - - area to be equipped with audiovisual display pre-programed and pre-selected by the instructor
   2. Case study - facilities for investigation and student interactions
   3. Activities for small group space, i. e., programed instruction, project activities

II. Rationale: The instructional spaces in the school should be composed of a variety of spaces of different sizes designed to meet varied educational functions. We must recognize the necessity of scheduling properly equipped spaces rather than specific items of equipment. A properly equipped space should have facilities for presentation and reception.

III. Problems and Issues:

A. Factors contributing to current problems:

1. Increasing population
2. Shortage of teachers
3. Inadequate facilities
4. Larger percentage of population attending school
5. Increasing need for more comprehensive education
6. Greatly expanded body of knowledge
7. Concerns with specialization
8. Effects of automation and technology
9. Demand for higher quality of education
10. The current and future knowledge related to educational technology will increase and this in turn will create new and more efficient designs for space utilization

B. Specific Objectives:

1. Greater scope and depth of learning
2. More efficient instructional processes
3. More effective instructional methods and techniques
4. Encouragement of individual initiative and responsibility
5. Better utilization of teaching skills
6. Provision for opportunities to explore areas of particular interest and develop special abilities
7. Accommodation of differing individual capacities for learning and development
8. More efficient use of facilities
9. Promoting in the student a higher sense of personal identifications and participations
10. Encouragement of continuing adult education
11. Teaching of new skills to persons whose previous abilities are no longer in demand
12. Others

Note: All of Section III was taken from the U. S. O. E. Project Report 432-10 with the exception of Item III-A-10

LARGE GROUP LEARNING SPACES

I. Definition: No definite size has been established for the maximum or minimum size of such group. The capacity should be keyed to the size of the group which can be expected to use it with regularity.

(Group A - Final Revised Report - Continued)

II. Rationale: Large group teaching utilizes these large spaces within the established constraints of educational systems. This method should be selected only when it provides for more efficient teaching-learning situation.

III. Problems and Issues:

A. Large group teaching techniques should be combined with other methods and systems to serve individual needs

B. There is need for incorporating effective teacher-student response as well as verification and reinforcement as a continuing part of the teaching-learning process

C. The facility should be so designed as to permit remote automated control operation so that the teacher can concentrate on teaching without being distracted with complicated manipulations. Environment should be automatically and artificially controlled. Close attention should be given to providing an ideal acoustical environment.

D. Student and teacher furniture, and particularly the writing surfaces, should be appropriate for the task at hand and the surroundings should be conducive to the type of learning expected.

E. Included in the planning for large group learning spaces there must also be provision for special personnel, equipment, and supplies for the preparation and testing of materials to be used in the large learning areas.

IV. Pertinent Resources: Many schools are presently using large group teaching, and their experiences should serve as a starting point for others. In addition, attention should be given to recent improved technological developments which can be utilized in this type of grouping.

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GROUP F

August 20, 1964

RENOVATION AND ADAPTATION OF EXISTING FACILITIES

Almost everything that is true about new construction of learning spaces is true about renovation of existing spaces. Still involved are such guidelines as "recognition of need", "philosophy", "behavioral and communication considerations with respect to student, teacher and administrator", "scheduling", "acceptance" and various constraints including constraints of budget, code requirements, school policies, etc. These questions have already been dealt with in other sections of this report. The difference between designing new construction and renovating lies largely in the major constraint imposed by the fact that the structure already exists.

This constraint calls for new emphases and a few additional guidelines to help insure that our schools obtain the best learning space possible under the circumstances. They are presented in the form of questions:

A. Has an overall program of educational use been prepared?
B. What are the specific purposes of the renovation?
C. What constraints in the present structure will influence the design?
D. Is it economically practical to renovate or would new construction meet the need better both financially and functionally?
E. What further renovations will be necessary?
F. Is the renovation designed for the expansion of present activities (or services) or the addition of new activities (or services)?
G. Could the educational purposes be achieved better through a series of separate spaces rather than one single central area?
H. Has the architect been requested to prepare alternate plans?
I. What compromises, if any, will the renovation of an existing structure entail?
J. Has full advantage been taken of the leadership of both the architect and school personnel?
K. Has the role of aesthetics in helping make the renovation maximally effective been examined?
L. Have the psychological and physical effects of color, texture, size, shape, lighting, acoustics, climate control, etc., on the user been considered with respect to how they can help to ameliorate or overcome some of the constraints imposed by an existing structure?

This committee recommends that DAVI sponsor the development of a detailed study on adapting existing buildings to new methodologies and new media requirements.

COMMITTEE MEMBERSHIP:

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David Guerin, Recorder
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GROUP E

August 20, 1964

THE ROLE OF THE EDUCATOR IN PROMOTING THE ACCEPTANCE OF NEW CONCEPTS OF LEARNING SPACE

INTRODUCTION: Recognizing the fact that change in education is slow, we ask ourselves how we as leaders in education can bring about desirable changes in the improvement of the educational program at an increased rate. Quoting from C. P. Snow:

> "In a society like ours, academic patterns change more slowly than others. In my lifetime in England, they have crystallized rather than loosened. I used to think that it would be about as hard to change, say, the Oxford and Cambridge scholarship examination as to conduct a major revolution. I now believe that I was over-optimistic". (Snow, 1961)

In a report given at the University of Nebraska, November, 1963, Matthew B. Miles continued:

> "Who would deny that change in education is slow? But it does occur. And while rueful pessimism about educational change is hardly rare in America today, the present zest for educational innovation, and the remarkable rate and diversity of educational change do, in fact, call out the label 'revolution' more frequently than not".

It is our intent to support the thesis as expressed in his report and to direct attention to the role of the new educational media leader as he fulfills his responsibilities.

The committee observes an old adage that when the tide is flowing out the wise man rows only hard enough to maintain position, conserving his strength. When the tide runs in, he bends to the oars, rowing to meet his objectives. "On this tide we are afloat", for public opinion is with us in encouraging the more extensive use of the Newer Educational Media. It is up to us to stop conserving our strength and put all our effort into accomplishing our innovational objectives.

We observe that the Newer Educational Media leaders primary efforts for accomplishing change must take place with all levels of pupils, teachers, administrators, and the lay public. It is within these groups we find the deterrents to acceptance of innovative practices insecurity and other forces. The removal of these blocks to innovation must be a major concern of the Newer Educational Media leader along with the technology itself. Accomplishing the innovation is a continuous process requiring a sense of timing and opportunity.

Educational innovators who promote new and different teaching-learning spaces should be aware of and work effectively with the following individuals and organizations as they may relate to the problems at hand:

I. Educational Policy Making Bodies: Board of Education, Education Commission, Ford Foundation, etc.

II. School Personnel: Superintendent and his immediate staff, business manager, secretary, directors, supervisors, consultants, etc.; principals, teachers, students, service personnel, such as custodial staff, cafeteria personnel, and clerical

III. Public: Parents (PTA), Educational Advisory Committees, Service and Civic Organizations, such as Kiwanis, Rotary, Lions, League of Women's Voters; Professional Organizations, Business, Industrial and Labor Organizations; Religious Organizations, and Ethnic Organizations

IV. Government: Local (village, county, city), State, and Federal

V. Identification of unofficial community decision makers: Judge, social and cultural leaders, banker, union leader, etc.

VI. Mass Media: Owners and editorial staff of television, radio, and press

Rogers, writing in "Diffusion of Innovation" found it essential that the "real" leader in a community be identified by those who would innovate.

The person who selects or determines who these real leaders are must be a person with much experience in and knowledge of the community or the society where he desires to diffuse an innovation.

Numerous studies and sociometric techniques have been developed in sociology to furnish methods to determine ways to identify this community leader.

Once these "real" leaders are identified, it is the function of those who desire to promote an educational innovation to develop a strategy (much as a tailor would design and make a garment) to take advantage of the individual's interests, his taste, his characteristics, his abilities, and all other facets of his personality.

The crux of the effort is in the "grand design" of this strategy.

If then, our hypothetical behavior change takes place in our community leader, his position of influence will bring about the diffusion or acceptance of the desired new ideas.

CONCLUDING NOTE: We recognize an individual leader in the community may be a member of many groups and have many spheres of influence. It is imperative that the educational leader make further study in the application of the learnings from psychology and sociology to become more expert in the field of human engineering leading to action programs.

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CONFERENCE SUMMARY

by C. W. Stone

Participation in the 10th Annual Conference has been, I believe, for most participants, an agreeable and indeed a heartwarming experience. It is something like visiting a family, most members of which were already known to you in person or about whom you have heard from friends. For the newcomer, however, participation in the family's way of life, its customs, games and rituals may at first seem a little strange and uncomfortable. But negative criticism is out of order because, necessarily, one feels uncertain of his ability to judge the significance of this way of life and of the rituals. And, in any case, a first-time visitor would take some care not to offend his hosts. Those returning to Okoboji, after one or more previous visits, have come to know and appreciate the family for what it is and what it has contributed. And they may have moved past the point of criticism through gaining a sense of belongingness.

In short, what I am saying is that it has been pleasant to be at Okoboji--for all of us--to be met, welcomed, and then taken in to participate as a full member in the professional family life. The honor of invitation and participation cannot but be appreciated.

Before reviewing conference objectives and the extent to which we may or may not have attained them, I believe it would be worthwhile to recall briefly a few procedures which were followed in bringing us here and during the conference itself.

You will remember that following receipt of our acceptance, each one received a number of items in the mail, one of which called for an identification of "concerns". These concerns were reviewed some three times and became the initial basis for formation of our discussion groups. All the arrival and housing arrangements were managed very comfortably and, following a somewhat nostaligic look (for the most part via tape recorded statements), our conference organized itself for work in terms of a topic of major theme which had been set in advance but which hadn't really been defined. A bibliography of some 32 items was prepared and distributed well in advance of the conference week, and it may or may not have been helpful to some of us in defining our concerns.

During the conference week of five days and as many nights, my observation is that participants did, in accord with the schedule discussed and which we voted upon to accept, engage in some long and very hard work in small group endeavors, in large groups, and on occasion in individualized as well as self-instructional effort, for study and special project work associated with what became an overriding concern--THE REPORT. The Report, once it was set as our goal, became a driving taskmaster. And I think it important to note at this moment, that in the opinion of some, this detracted from attainment of other more important educational goals.

In any event, our week was leavened with planned humor and an evening "on the town". The food was good, accommodations unpretentious but adequate, and our morale remained fairly high, even when taxed beyond what some would consider reasonable limits such as by large group drafting of documents.

(Conference Summary - Continued)

Our conference group set its own goals and measures of performance, reviewed and modified its own procedures. And we were clearly in control of our own conference destiny all of the way through. The resources and consultants provided were all used, rather late in the day in some cases, but they were used increasingly as the difficulty of coming to grips with the topic set was recognized.

I believe it has been worthwhile to recall these procedures before commenting, as I shall now do, on the conference goals and our levels of attainment. We were in full control of what we were doing all the way; if I have a question about this, it is whether or not we were actually ready to accept this measure of control in the content area laid out for us--and, if not, then what themes or topics might have been set which would render us more secure in control and more capable of managing our own conference and, indeed, whether such an objective should always be our primary goal.

Our conference appeared to me to have many objectives, some stated directly and some implied. Among those stated in this room for the 10th Annual Conference were these:

- A look at past Okoboji Conferences to assess their worth and to glean ideas for the future.

- Consider the nature of learning spaces and their relation to educational media.

- To develop a report of proceedings which we can share with professional colleagues at home.

Among the objectives which were not stated quite so directly (at least not during general sessions) but which may well be more important are these:

- Introduce people relatively new in the profession to those having had longer experience in the field, and to weigh leadership potentials.

- Serve as a "vestibule" of sorts to discover current interests and operational trends among media people.

- Open, reopen, or improve lines of communication between individuals, groups, and institutions which serve the educational media field.

- Train participants for coping with undefined problems through self-structuring and definition both of the problems and of the group process needed to achieve suitable study and development.

- To provide circumstances and situations in which individuals may more readily learn about new ideas and weigh their importance than

(Conference Summary - Continued)

when they are at home occupying a status role, and to provide such situations over a long enough time period so that some learning can take place.

- To serve as a forum, a clinic, a classroom and a recreational camp all rolled into one as the occasion requires.
- To provide leads for DAVI activities and perhaps those of other professional groups serving the media field.
- To help keep the profession knit together, at least in terms of important segments of its leadership.

These appear to be some of our objectives and the next question is - "Have they been achieved? If so, how were they accomplished? What are the results of five days in northwestern Iowa?"

Without specifying which class of objectives is involved, let me suggest some apparent outcomes as these came through our general meetings and reports:

- Increased awareness among participants of problems and methods as well as terminology associated with the design, use and evaluation of learning spaces and educational media.
- A report (or rather a series of preliminary statements) which reflects group thinking within a specific conference context aided by consultants about such further problems as those which follow:
- Optimum characteristics of space developed for individual, small group and larger group learning.
- Functions which must be performed by and the space requirements of an instructional resources program. (Incidentally, from this came both a philosophy as well as a useful tool.)
- Sources of and needs for information and research; how research in this field may be conceived and carried out, as well as a model dissemination program.
- An approach to definition of educational specifications and the importance of stating these in terms of desired behavioral outcomes.
- A review of dissemination and persuasion problems affecting learning space design and construction.
- An inventory of factors to be considered in renovating or adapting as well as developing new spaces for learning.

Then there were other outcomes:

- The making of new acquaintances and the renewal and strengthening of acquaintance with older friends.
- Some specific recommendations were developed for DAVI and other professional organizations.
- There was some counseling on some specific problems although, for the most part, this seemed to be accomplished during individual and what might be called "extracurricular" activities late at night.
- There were some badly needed recreation, relaxation and personal reinforcements, provided by coming into the professional family environment.

Certainly, there were other outcomes. But to me these seemed the most evident.

As for particular results, they are probably long-term and for the most part intangible, more related to development of a professional cadre now at work than to specific projects and programs. However, I should like to highlight the recommendations implicit in this statement which appeared in the first draft of the research committee's report. I quote:

> "Perhaps there would be value in the development of a series of axioms which would distill all the relevant knowledge to the school plant planners. This is, however, beyond the available resources and the professional competence of the writers of this paper. We have neither the bibliographic resources, the substantive knowledge, nor the inclination to assert the distilled truth for educators."

I don't know whether this means that it cannot be done or whether it meant it simply could not be done here. But, if any portion of the task can be accomplished, it should be done later at some other place and just as soon as possible.

Represented in this room this morning, is something which probably exceeds a half million dollars in salaries each year being paid to individuals who, this year will in some way influence educational plant design and construction likely to cost many millions of dollars. We need whatever help we can get, and we need it now!

But this brings me to a next point. There are some cautions to be observed, and some major decisions which I think should be made regarding use of conference techniques such as Okoboji provides to stimulate professional awareness and to encourage operational change.

I would like to put these cautions to you in the form of questions, and I would like to state in advance that I have not the faintest notion of what a complete answer to any of these questions would be.

- Is there any conflict in the apparent conference goals which might work to block attainment both of a clear focus on any specific conference topic and on optimum group development?

- Is such a topic as that which we have considered this week more effectively considered by persons following a more fully pre-planned and structured program? And, if such a topic as that we have been discussing is not considered within structured limits, is there a danger of too many participants leaving northwestern Iowa, either confused and disappointed or, on the other hand, over-confident of partial and scattered knowledge? (Now, I think, on this point that we have been very careful at this conference to make clear the limits of our accomplishment, and therefore, should not suffer from this particular problem.)

- Is there a possibility that some building could be done from year to year, in terms of conference development of themes, perhaps by using the same consultants, so that we can avoid the business so frequent in education of starting over and over again at the same level of concern?

- And, granting the need to start where all of us are and in the light of where we think we want to go, can we not get some expert light shed on the problem of how to advance with what sequence of steps to effect what type of professional consequences?

- And herein lies a major problem of the conference, its planners, its officers and as well as your present summarizer:

  On several occasions during the week, again--most frequently late at night, I was asked:

  "How are we coming? Are we getting anywhere, and if so, where?" And the only honest answer that I could give to this was, "I don't know." Our terms of reference or evaluation were never really specified, by us. And remember, we were in full control. In this regard, it is my feeling that rubbing together may very well generate heat and comfort in winter and make us comfortable, but it will not necessarily under all occasions serve to generate light or, for that matter, even an awareness of darkness.

- And one last caution in the form of a question: All conference participants are clearly and very greatly indebted to our consultant guests and resource people for their enrichment of our proceedings, the insights provided and the provoking of new interests and thoughts. But did we make good use of them? Were we truly and consciously waiting for readiness and identifying the most teachable moments, or were we rather lax in our planning and provision of arrangements? It seems to me that we may have followed what amounts to a conversational chain rather than organizing ourselves for a discussion patterned for learning.

Now we are close to the end of this summary. The report we have produced will speak to and for us. And it probably will help to remind us of some of the things we have done and the good times we have had. It will not adequately, however, express our individual and personal debt to Lee and Lida Cochran, to their associates, to our co-chairmen, and to our conference leaders; to Israel Goldiamond, Sol Cornberg, Mort Gassman, Gates Beckwith, and Paul Messier who served us so generously as consultants as well as to the conference sponsors represented in part by Stan McIntosh.

Neither can our report express adequately its own importance, assuming we do not misuse it and expect too much of it, as a catylist to force our energies to attempt to work productively within a finite time period.

Finally, our conference report is unlikely to reflect, because we do not know how to measure it, what may have happened to each of us because we have been to Okoboji. And therein, lies, I think, the chief moral I'd like to draw. Perhaps we cannot appraise the contributions made by participation in this 10th Annual Conference, because we may not have started out with outcomes in mind, nor specific plans for achieving any. We might wish to try a new approach as a variation in the future.

But, in any case, as most of us leave Okoboji, it is my impression that we are somewhat different people for having been here. I believe in most cases we are personally reinforced, refreshed, stimulated, and resolved to use whatever our gains have been to render our professional efforts more effective. One can't ask more than that of any single meeting.

To close on a specific note, the proceedings of this conference have led us through a chain of events which cannot have failed to impress us with a message which is to this effect: Our problems in thinking about learning space and educational media in instructional programs, are not chiefly problems of site selection, bricks and mortar, dollars, public support, and so on. Rather they can best be approached through definition of what the consequences of learning should be and how that learning may be acquired, after which there may follow more naturally the needed specifications of shape and form. . .

Thank you.

* * * * * *

(Tenth General Assembly - Continued)

X. All reports were accepted by the conference delegates as edited by the Editorial Committee.

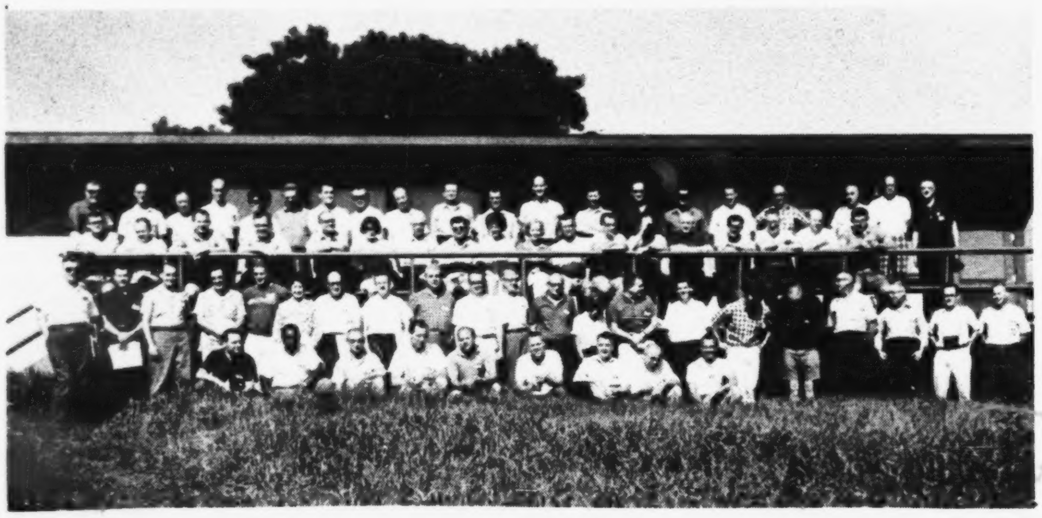
XI. The co-chairmen, James W. Brown and Donald P. Ely, returned the Okoboji gavel to Lee Cochran, with instructions that it be kept until the 1965 Okoboji conference.

Lee Cochran thanked the co-chairmen for their successful conduct of the conference. He further thanked the delegates for their contribution to the conference, with the hope they would all return to Lake Okoboji "A Place of Rest" (Indian translation of Okoboji).

XII. THE CONFERENCE ADJOURNED AT 11:00 A.M. on Thursday, August 20, 1964.

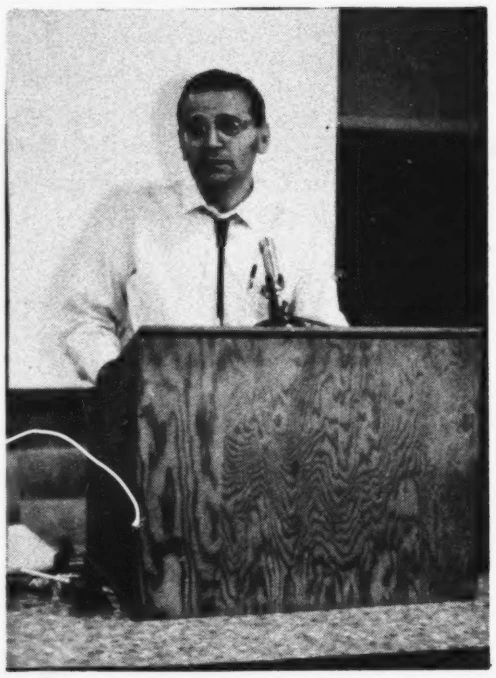
* * * * * *

OKOBOJI CONFERENCE
1964



The delegates assembled . . . and

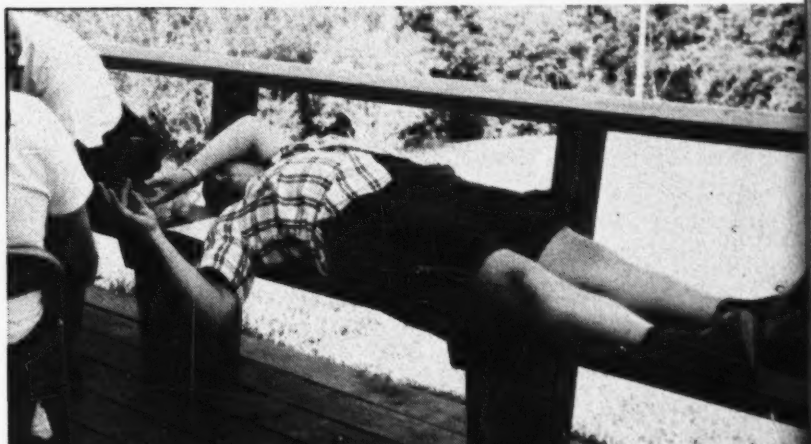
. . . expressed appreciation



. . . heard Dr. Goldiamond's keynote

. . . elected Don Ely and Jim Brown
co-chairmen . . .

. . . elected de Kieffer chairman
of "rest" . . .



. . . and some "rested" . . .

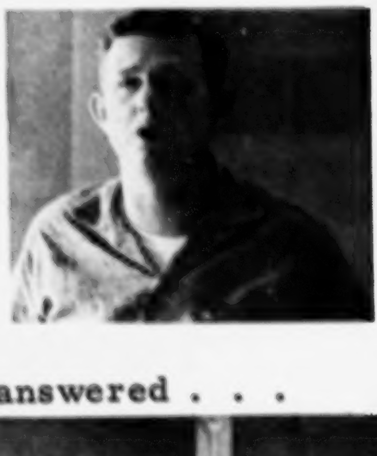
They met in large groups . . .

small groups . . .

and medium size groups . . .

. . . They talked . . .

questioned . . .



answered . . .

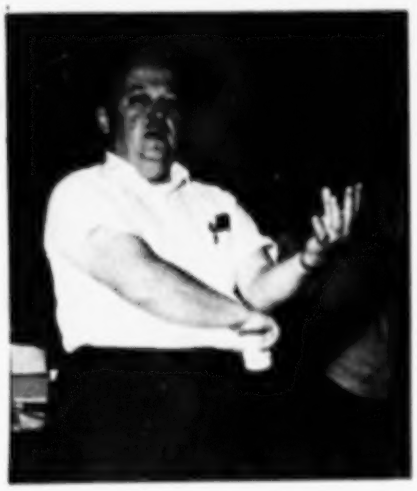
discussed . . .

. . . and listened

They listened to a panel of experts . . .
Gassman -- Beckwith -- and Cornberg

and . . . learning space reports.

They visualized . . .



. . . synthetized . . .

. . . sympathized . . .

and syncretized . . .

They listened to reports . . .

wrote reports . . .

. . . rewrote reports . . .

discussed reports . . .

. . . assembled reports

. . . and objected to reports.

They mixed "learning space" with good food . . . .

. . . elected Cowdery "sweetcorn king" . . .

. . . heard final reports . . .

appointed a Planning Chairman for 1965. .

. . . and heard an outstanding Conference Summary by Walter Stone . . .

. . . They then adjourned to meet again . . . in 1965 . . .

Appendix A

SELECTED BIBLIOGRAPHY AS RECOMMENDED BY OKOBOJI DELEGATES

BOOKS AND PAMPHLETS

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Koppes, Wayne F., *Design Criteria for Learning Spaces - Seating - Lighting - Acoustics*, Troy, New York: Rensselaer Polytechnic Institute, School of Architecture, n. d.

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Preplanning of School Plant Facilities - School Plant Section, Division of Administrative Services, Texas Education Agency, Austin, Texas

Profiles of Significant Schools: High Schools 1962, New York: Educational Facilities Laboratories, Inc., 1961

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School Library, New York: Educational Facilities Laboratories, 1963

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Trump, J. Lloyd, *Focus on Change: Guide to Better Schools*, Chicago: Rand McNally, 1961

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U. S. Office of Education, *Planning Schools for New Media.* Washington, D. C.: Government Printing Office, 1962

PERIODICALS

A. L. A. Bulletin
American School & University
American School Board Journal
Audiovisual Instruction
A-V Communication Review
Clearing House
Educational Screen & AV Guide
Library Journal
N. A. S. S. P. Bulletin
National Education Association Journal
National Elementary Principal
Nation's Schools
Overview
School Executive
School Libraries
School Management

PROFESSIONAL ORGANIZATIONS AND GOVERNMENTAL AGENCIES

American Institute of Architects
American Library Association
National Education Association and affiliates
National Education Association departments and their affiliates
State Departments of Education
U. S. Office of Education
UNESCO

CONCERNS OF DELEGATES TO THE TENTH LAKE OKOBOJI AUDIOVISUAL LEADERSHIP CONFERENCE

August 16-20, 1964

These are the "concerns" sent in by delegates to the Okoboji Conference, 1964. They were sent to each delegate so they could be studied prior to the conference. They also provided the Planning Committee with interests of the delegates prior to the conference.

1. Winston Eshleman

   The creative use of learning space for independent study
   - a. Individual study carrels
   - b. Teaching machines and programed learning
   - c. 8mm single concept film loops
   - d. Individual listening and viewing devices
   - e. CCTV for independent study

   An instructional materials center for the individual school building
   - a. Materials and services to be provided
     - 1. For the student
     - 2. For the teacher
   - b. Different plans for elementary and secondary
   - c. Relationship to traditional library and audiovisual service

2. Donald P. Ely

   My concern is one of obtaining specific information. Where does the audiovisual specialist go to obtain specific information about lighting, acoustics, temperature, ventilation, decoration, seating, electronic components, etc.? We have bibliography after bibliography listing selected references in this field, but no key to specific sources for specific information. I hope the conference will consider the possible publication of a "reference guide" to specific information regarding the planning of building facilities. A second type of information needed is the case study of various types of facilities. Where can one go to see optimum conditions in a large learning environment? Where can one see response systems in operation? Where can one observe a comparison of rear screen projection to front screen projection? These are specific pieces of information which are required for those of us who are deeply involved in building planning. I would like to see the conference develop specific recommendations along these lines.

3. David M. Crossman

   Recently, a college president with whom we have been working in connection with a new building program, referred to a "communications mystique" which, he feels surrounds media, and (he implied) media people.

   He suggested that a vagueness exists in the minds of many school executives about the nature of communications in the classroom. He felt that communications, like patriotism, was surely a good idea, but formless and unstructured as a separate idea.

I am concerned that there are many more like this college president. I feel that we, as a profession, are frequently vague in explaining our favorite communication theories. I fear that we are frequently guilty of cloaking our own activities in an air of mystery in faint hope of somehow becoming more sophisticated and therefore more acceptable to the world of the intellect.

I feel that we, through our own carelessness, through our own conspicuous lack of attention to what we know to be true, often fail to communicate at all.

A completed learning space evolves as a product of the efforts of many. That a learning space is to be constructed to provide for good communication is to mention only one factor that must be considered in its construction.

We must make an honest attempt to understand the wide variety of construction problems that must be considered in the creation of a learning space. This kind of understanding not only makes us better informed but increases the possibility of our own effectiveness with those who must make construction decisions.

Architects design schools. Some are well informed about the use of media in the learning space. Most are not. How can we mediate the gap between the architect and the school administrator?

Obviously, substantial effort and expense has gone into the various programs of the Educational Facilities Labs. Publications have been circulated in great quantity. To what extent has this organization influenced school construction in the United States? How successful has this venture been in providing leadership for innovation?

What are the most important deterrents to the use of media in learning spaces?

Considerable attention has been devoted recently to the construction of individual learning spaces engineered for use with random access information retrieval systems utilizing both audio and video terminals. What is the state of development of the concept? Is this type of system yet produced for inter-school use?

Innovation in the construction of learning spaces are usually difficult enough to bring to realization. Once built, however, another problem frequently presents itself - that of faculty support and proper utilization. The effective use of media in a space designed especially for it rarely requires less faculty time. To the contrary, the normal pattern calls for more faculty time, more faculty energy and additional staff to support good use of the space.

What are the effective dynamics of encouraging good faculty use of media centered space?

4. Howard Uhrig
The concern involves the design of learning space and equipment that will permit the teacher to have full control over the learning environment in order that an uninterrupted learning climate may exist.

(Concerns - continued)

5. Edward Abercrombie
One of the authors in the prepared bibliography stated "that new media (in today's world) fulfilled the need to store and use more and more information in more and more ways. This job belongs to the library". *

This statement to this reader brings up several questions for discussion. These are:
a. The author has placed emphasis on housing all information in a library. No mention was given to an A-V center or a joint library - A-V center project. Therefore, is there any or less interest and consideration among planners and architects towards a joint project or an instructional materials center in new construction?

b. Many articles in the bibliography did not picture a floor plan of a materials center in new or remodeled construction. Is the building coordinator being allowed to express his views or knowledge in the overall planning of new construction?

c. Has this author (along with other planners and architects) really taken into consideration that a library, as such, is not fully adapted to fulfilling the needs and demands of housing and disseminating this new media information and its tools.

6. Bernard T. Hanley
Programed learning in equipment such as Graflex Micro-aid teaching machines take up space on a classroom desk. If machine is not in use - it is in the way of the student for other activities. If it is moved from the desk - it must be stored someplace nearby; this creates storage problems which is a common complaint of a majority of teachers now. If a lab is used instead of a classroom - the percent of utilization as to cost of the lab enters the picture. Are the benefits derived worth the problems created by the programed learning.
P. S. Also concerned about the spelling of "programed"; my dictionary uses two m's - the Graflex advertising uses only one.

Industry keeps saying, "Train people to get along with each other"; "Our biggest problem is not people who can't do the work, but people who can't work with others."

Educators are advocating individual, self-contained units for students; all information coming by sound, a TV screen, etc., remotely controlled by push buttons. Are educators thus encouraging the very thing about which industry is complaining?

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*Brubaker, C. W., "Relation of Learning to Space and Vice Versa", National Association of Secondary School Principals, Bulletin #46, May, 1962, pp. 197-200

(Concerns - continued)

7. Thomas P. Hannan

   Assume that change is a fundamental factor in life, a truth. Space for learning then must be flexible to meet these conditions:

   What sizes and shapes should be possible without disturbing bearing walls?
   What decibel levels are permissible in various learning spaces?
   What kinds of decibel control are provided in today's removable walls?
   What are the implications for learning space that are imposed by the learning materials and media?
   When may the media negate the need for changes in space?
   When does the space provided hold implications for media and materials?
   How important to learning and/or teaching are:
     Space design, building materials, space shapes, colors, textures, light, heat, etc.
     Built in media and equipment
     Immediately accessible materials and equipment
     Readily accessible materials and equipment
   What learning resources might best be provided by electronic means, in what sorts of learning spaces?

8. M. C. Gassman

   While much has been said about the benefits of multi-media in the instructional programs, in actuality, most educators seem to shy away from its use.

   The student today, as never before, has been weaned on visual communication, yet most teachers still appeal only to the student's sense of hearing.

   The following must be of deep concern if instructional programs are to rely upon media presentations:
   a. The training of instructors to use and think in terms of multi-media
   b. Active participation of the learner during an instructional presentation
   c. Proper projection of the media to allow the learner to clearly see the information
   d. The production of good audiovisual material
   e. The design of rooms for media presentations
   f. The correct choice of the components of the projection system
   g. The availability, adaptability, and cost of these components
   h. The use of the correct components for the presentation

9. Elwood Miller

   As the school administrator manages the planning process that results in new construction, he is placed in a locus of pressures from many different directions. Teachers, tax interest groups, community leaders, parent groups, building and supply groups, architects, contractors and ad infinitum want to have their way. For reasons not clearly understood by this "concerner", we in the media phase of instruction seem not to be able to get our pressure system into the same league with many of the others. Buildings grow with glass, no ventilation, poor light control, bad acoustics, etc.

(Concerns - E. Miller - continued)

Are we spending too much of our energy talking to each other at the expense of "getting to" those in the political power structure who are in a position to do something?

Pragmatically, what are some systems (this is a popular word in our culture these days) that we might devise to influence the top decision makers???

10. Harold E. Hill

Learning space must be planned for multi-media approach

a. Space is wasted when planned for only one or two media
b. Selfish interests and concerns re one media must now be allowed to enter into planning
c. Experts in the several media should be consulted in order to obtain a broad picture

Provision for different sized groups must be made. Learning space must be broken up into varied sizes (or be capable of temporary size adjustment), because different subjects are appropriate for different sized student groups, and are better learned in different sized groups.

In space planning, provisions should be made for the team-teaching approach tied in with extensive use of the media.

a. Rooms should be so developed that the entire group in a team teaching group can be involved at the same time, and yet the facility should be capable of subdivision so that the smaller interest groups can work together at other times.

Provision should be made for adequate equipment installation and storage

a. Building plans should include not just student and office space, but should include provision for projection booths (both normal and rear-screen), TV and radio studios, film libraries, viewing rooms, and all the many space requirements of the media.

Provision must be made for well trained, cross-media specialists to properly utilize the learning space and the media involved.

11. Sol Cornberg

That new space and new technology, as Educational Media, will be warped to accommodate existing teaching practices, which by and large are based on procedures more than a half century old.

That "flexible" learning spaces, as being accepted by Educators, will continue to reflect lack of desire or ability, to make decisions on space requirements as they would reflect Educational Program needs.

That in embracing the new technology as part of Educational Media, the Educator being seduced by the media sophistication, will expend his energies in programing for the media rather than for the student.

That in embracing the new technology as part of Educational Media, the Educator will miss the opportunity to recapture the prerogatives and responsibilities of and for Instructional Program; design, production and distribution.

That in embracing the new technology as part of Educational Media, the Educator, caught up in empire building, will miss the opportunity to free himself as hand-maiden to equipment, allowing for unfettered concern with Instructional Program content.

12. Betty and Francis Noel

A review of current educational literature on school design indicates that boards of education, administrators, and architects are progressively recognizing the importance of designing the learning space in terms of the requirements for the use of educational media in the instructional program. This situation is no doubt to a large extent the result of leadership in audio-visual education.

A concern is that in the light of this more favorable environment for new technics and devices in audio-visual instruction we take stock now to determine what changes might be made in our efforts to maintain this more favorable position and relationship to boards of education, administrators, and laymen as well as architects? In what ways can we work to accelerate the change and yet be on sound educational ground?

a. What at the local level should be done? At the regional level? At the state? On the National level? In the areas of teacher education?

What can be done to stimulate greater concern on the part of persons responsible for curriculum and instructional materials programs to explore the reorganization of curriculum in terms of potentials for instructional improvement through the use of newer educational media in an effort to design school environment for the most effective use of these newer media?

What are the principles of an instructional system design? How can curriculum materials be tailored for an instructional system design? (to cover objectives, skills, and abilities of teachers and pupils, grade level needs, etc.)

How can new ideas and theories about intelligence, perception, thinking, creativity and learning be applied in the organization and utilization of learning space? In the use of newer media? In the production of new materials of instruction? What are the newest findings?

Are we committing ourselves uncritically to current modes of school organization and schoolhouse planning without adequate research or similar evidence of the educational soundness and stability of the new trends? Is it a case of manipulating forms of organization without basic changes in curriculum and methodology -- changes also based on valid research?

What educational philosophy, educational research and curriculum changes give a basis or bases for accepting current trends in school design? Could

(Concerns - Noel - continued)

these be summarized, or a bibliography of studies given, or abstracts of studies be made available?

What changes in organization and use of new educational media are needed to implement new ideas about team teaching? Teaching large and small groups? The "little school" within the big school idea? Individual study, etc.?

What changes in teacher training in AV?
What in production of instructional materials?
What in new equipment or modifying old?
What changes in use of space?
What changes in development and use of ETV (cc and open)?
What changes in development of local materials?

13. Leone Lake

Optimum Use of Media

A. Building Design
    1. Architects problem. . . concern:
        a. That he be provided at the start, with a good educational program
        b. That he be informed of new trends and developments in the instructional program. (Lack of creative use of instructional media is often the result of school plant planners who are unaware of technology as a means to solve instructional problems.)
B. School Plant Planning Committees
    1. Who shall be involved. . . concern:
        a. That more audiovisual directors are not actively involved in school plant planning
        b. That more school faculties and curriculum councils "grass roots" are not involved in school planning; design concepts in relation to the needs in the teaching learning process
C. How can administrators be influenced to provide and remodel:
    1. Teacher learner space in existing traditional buildings
    2. Teacher preparation space in existing traditional buildings
    3. Learning resource centers in existing traditional buildings

Creative Use of Instructional Media in Existing School Buildings of Traditional Design

A. How can these buildings be remodeled for best possible utilization of space
    1. To promote a new image of the role of instructional media to:
        a. Board of education members
        b. Administrators
        c. Architects
        d. Community
        e. Teachers
    2. To provide close available resource centers for teachers and students
B. New developments in automation are relieving teachers more and more from administrative and clerical tasks
    1. With this trend, teachers will have more time for planning, etc. More attention should be given to the instructional resources program by administrators and supervisors.

(Concerns - Lake - continued)

a. The concern then is how to have the teacher better informed of new instructional materials and new media. Teacher preparation areas must be provided
b. Another concern is that existing traditional schools are not reshaping space in order for the teaching staff and students to keep abreast of new resources, to select, utilize, and prepare more instructional materials thus integrate varied media in the instructional program

14. C. R. Blankenship

Once the ideal learning spaces for large group, small group, and individual study have been determined, how are these spaces brought into being? How do we communicate our desires to the architects?

Ideal learning spaces need proper lighting, climate (temperature and humidity), and sound conditioning. How many foot candles of light should these spaces have, how much fresh air? These are engineering problems. To what degree should we be concerned with them?

15. C. W. Stone

What do we know with certainty about the effects of various learning environments upon individuals in general and upon different types of individuals engaged in different sorts of instructional pursuits?

Apart from results of work now under way at the University of Pittsburgh, M.I.T., etc., what do we know with certainty about ways in which different sorts of individuals engaged in different learning tasks react to different electro-mechanical hardware components used in carrels or study stations?

How significant and "stable" are present educational theories and principles on the basis of which learning spaces are currently designed?

Where are we going in development of instructional materials centers, learning laboratories, resource centers, school libraries, communication centers (or call them what you will)?

16. Vernon Gerlach

The teacher and the curriculum specialist specify the nature of the behavior desired (what is to be learned).

The psychologist specifies the method and means of ascertaining whether or not the learner possesses the potential for the learning task; he also specifies the stimulus conditions under which the desired response is likely to occur.

The media specialist specifies the materials and equipment which are necessary to afford the optimum implementation of a given learning task.

(Concerns - Gerlach - continued)

The architect specifies the nature and characteristics of the space in which the learning is to take place.

The Lake Okoboji Conference must learn how to integrate and articulate the tasks of the teacher, the psychologist, the media specialist, and the architect. If the conference does no more than describe clearly the problem and propose possible methods of studying it, it will have accomplished a great deal.

17. Paul Messier

My concerns basically focus upon the implications of new educational media for the planning and design of educational facilities:

a. Flexibility which permits the adjustment of space size to various new media techniques for their most effective use
b. Shapes of spaces which make efficient use of educational facilities and permit optimum utilization of new educational media
c. Acoustical planning of spaces for new educational media. Flexibility involving operable walls and partitions as related to space acoustics
d. Interrelationships of learning spaces to the location and design of new media production, transmission, and resource centers
e. Air conditioning or temperature control requirements of new media centers, flexible learning spaces, large and small spaces of various designs, etc.
f. Lighting control requirements and planning for various new media techniques, flexible spaces, etc. Natural lighting and artificial lighting applications
g. Space planning for new media applications to individual study. The design, lighting, interrelationship with other spaces, etc., of individual study spaces.
h. Design and arrangement of seating furniture, built-in equipment, mobile equipment, etc., for various types of new media. The storage and servicing facilities required for such furniture and equipment. The design of furniture for both active and passive learning with new educational media.
i. Implications of new educational media for the modular design of educational facilities

18. Jack Edling

Learning spaces have been built for a long time in the U.S. We probably have approximately two million in public and private schools now. Several thousand are being built each year. Practically all are designed for approximately 30 students with desks for students and teachers, chalkboards, windows, etc. We have these spaces and will continue to have them for 50 and more years. (all or most of the professional life of everyone attending the conference and the students of these conferees). My concern is with the basic philosophy in thinking about such situations. Should we begin with the concept of an "educational system" and conceive what "ought to be" in view of current knowledge. Or should we accept the fact that most of the "learning spaces" available to us in our lifetime are already built and concern ourselves with their modification, adaptation and improvement?

If learning spaces are to adapt to current thinking of behavioral scientists, there must be much greater emphasis on "practice spaces" and provision of "feedback" to learners relative to the adequacy of their behavior while practicing. If the current notions of behavioral scientists are valid, then we must identify the behavior to be learned, before the appropriate practice (and eventually the practice space) can be specified. This will require knowledge from the subject matter experts which does not appear to be available at the present time. Therefore, how can we discuss, meaningfully, learning spaces and ed. media when we really don't know the kind of behavior we are trying to have our children learn?

19. C. Gates Beckwith

Architects have recently begun to recognize the need for new and varied kind of learning spaces. However, do we really feel that we can expect to get a Physical Facility (a school building) that will adapt to the ever changing educational philosophies and programs, which will effectively contribute to the learning function, or - is it more realistic to believe that this end will have to be accomplished with the development of technology (electronics, A-V aids, machines, etc.)?

"Flexibility in Planning" has been the catch-all, cure-all phrase of architects and educators for years. With few exceptions most of us have given no more than lip-service to its effective implementation.

However, recently certain manufacturing developments have made the malleability of space and room sizes a reality. I refer particularly to "moveable partitions". If this is true should we not now carefully evaluate the potential of reducing spaces within a building in order to make less space more effective.

20. Forest L. Crooks

What would be considered an adequate and desirable audio-visual program in connection with the learning space of a five year state college with 4200 students and 210 teachers?

The following items are the ones which I am particularly concerned about:

a. Yearly audio-visual budget
b. Number and kind of personnel
c. Facilities for room darkening
d. TV facilities for learning space
e. Amount and kind of equipment for audio-visual center
f. Amount of space and number of rooms in audio-visual center
g. How large should the film and filmstrip library be for a program of this kind? Would a cooperative film library, involving all or nearly all institutions of higher learning in a state be advisable or desirable?
h. How much equipment and what kind should be placed on permanent basis in the learning space of the various divisions and departments?

(Concerns - Crooks - continued)

- i. How much of the equipment and what kind should be kept only on loan basis in the audio-visual center.
- j. In connection with the construction of a new 60-room classroom building on the campus of a small mid-western state college, what specific recommendation concerning educational media should be made by the audio-visual director or those in charge of audio-visual education?
- k. Should all future dormitory rooms be connected by closed circuit conduit for possible future use as part of the college's learning space, or should the extra money involved be used for something else?

21. Robert L. Paulson
The Laboratory School of the State College of Iowa is at this time making initial plans to enlarge the present facilities of its library and audio-visual center. Early plans call for the combining of both of these services into one area and expanding their function and services. Since construction is scheduled to start in 1967 any assistance we might receive will be of great assistance.

Our main concerns at present may be stated as follows:

- a. How best can we develop a faculty awareness to the need for such a center? Since this involves a new insight into educational technology and its effect upon the classroom, what steps need be taken to assure that such a center will be fully utilized once it is completed?
- b. What new attitudes toward learning must be required of our staff in order to allow students the freedom to use such a center?
- c. What guidelines might be established that would assist us in involving our staff in initial planning?
- d. Physical Plant
  - 1. What plans should be incorporated into the plans to provide for flexibility and future rearrangement?
  - 2. How can area be best arranged for dual purposes - Example, how best can we take care of small group viewing, large group orientation or demonstrations?
  - 3. How feasible are moveable walls as far as soundproofing is concerned?
  - 4. Since we have received delivery of our EDEX installation we need suggestions regarding rear screen projection.
- e. Materials & Equipment Administration
  - 1. How best can we organize a central catalog that will include all library and A-V material? What should be included, eliminated?
  - 2. How best can we provide for information retrieval on slides, tapes, transparencies, etc. ?
- f. Services
  - 1. How extensive should local production be and should it include such services as ditto and mimeographing?
  - 2. What services should be available to students and teachers and what should be reserved for specialist? Example: While all may use the Thermo-fax machine, should we expect all to have access to and knowledge of photography or Diazo reproduction?

(Concerns - continued)

22. David Guerin
I am concerned about sound isolation. A fair degree of background noise can be tolerated and is tolerated in all manner of everyday situations both in school and out. The problem is to keep it in the background. It is true that complete sound isolation is not necessary. But it is also true that in a classroom situation competition for attention of students is something we can do without. I am concerned that we may be tempted to compromise too much in this regard in order to take advantage of the great flexibility offered by the use of folding partition which thus far (except for extremely expensive kinds) have not been sufficiently effective in isolating sound.

I am concerned also that in an effort to reach ideal designs we may fail to give attention to ways and means of making improvements in existing structures. Many schools are voting on bond issues for financing additions to existing structures. These I would guess present a greater number of practical opportunities for improvement than does new construction.

More and more the educational media specialist is becoming involved in curriculum development. This is as it should be and certainly curriculum development should be a part of any formal program for the preparation of educational media specialists. I am therefore concerned that this role be recognized in school design. It seems to me that though we are in no danger of overlooking space for the storage, preparation, distribution, and utilization of media we might fail to design for the curriculum development function. To be specific I would want to be sure that space for curriculum materials would include space specifically designed to encourage curriculum planning in a curriculum materials setting. That is to say, I believe we should have teacher conference space located amidst our collection of texts and teacher references, our book library and our multi-media collection (and possibly the media production center). The librarians and the audio-visual personnel must serve more than an archival function. They must act as well as react, and schools should be designed to facilitate and encourage the positive contributions they can make.

23. Earl Wenzel
Technological progress would seem to indicate that educators and architects have a responsibility to speed up space designing for use of books and new media together. Individual learning as it relates to individual study space, space suited for the use of one student scheduled individually and studying independently.

To build new schools that include new ideas or designs for developing space that enhances teaching and learning is one thing. However, what becomes of the buildings of older design, buildings that cannot, either for economic reasons or because of a relatively short life, be replaced?

Minimum fenestration to the point of windowless school buildings, creates concerns shared by some architects and educators that such designing deprives the child and the teacher of the psychological benefits of bringing daylight into the classroom.

(Concerns - Mennet - continued)

The following "concerns" are outside the theme of the conference, however, they may be of interest. They are ones which gravely concern the San Francisco Bay area section of the California State Association.

a. Job specifications for classified personnel at district and county level
b. Maintenance of audio-visual equipment and materials
c. Unification and its ensuing audio-visual problems
d. Problems of evaluation, selection and obsolescence of instructional materials
e. In-service education for teachers

24. William Grimes

The windowless school vs. schools with windows. (Cost and influence on learning space.)

Response stations - location, number wiring plans, type

25. Richard Nibeck

"What sources of information on plant design and space utilization are available to help the media specialist organize his thinking relative to current trends and practices."?

My concern is to determine the availability of information and the ease with which it can be obtained. Has any one organization catalogued this information? What are the sources of information and assistance? Would it be valuable to do this type of cataloging?

What is the relation of plant design and space utilization? Can these areas of concern be separated because one deals with physical facilities and the other with the administrative manipulation of students?

Is there a body of research information that identifies the effects of environment on learning and does this research have implication for the media specialist in his concern for plant design and the utilization of learning space?

My concern would be to determine the existence of such research and to see if principles of good practice can be formulated to serve as guidelines to planning new facilities and methods of instruction. Is it possible that new direction of the use of learning space are based on economic factors rather than sound principles of learning? Are they administrative expediencies?

"What is the present role and what should be the future role of the media specialist in promoting programs directed at new ways to utilize learning space?"

My concern would be on identification of the existing administrative practices relative to instructional innovation and to determine how the media specialist can add his thinking to the forces responsible for instructional change. What background should the media man have? Does he enjoy an administrative status that recognizes his potential contribution? If not, what is necessary to change this status? What are some of the successful approaches that have been used by media people in the promotion of their ideas?

26. Gordon Blank

Current concepts of learning space and facility design are predicated on a base of functional flexibility. Current concepts of curricula design and methodology also spring from a base of functional flexibility. How can we avoid the pitfall of "going off in all directions at once" as a consequence of the prevailing trend toward flexibility? How can we avoid the educational anarchy that can arise from lack of a central, stable core? What is our anchor to windward in a sea of rapidity of change and crosscurrents of flexibility?

The educator of today is faced with the ever-widening gap between "what-is" and "what-ought-to-be" in educational facilities. We recognize the comparative ease with which learning spaces may be functionally designed to permit implementation of flexible, technologically oriented curricula, as compared with the difficulty of adapting traditional stylized spaces to the new process. Yet the majority of our learning takes place in the traditional "hardened" shoe-box facilities. What can we do to ease the educational burden of adaptation of existing "hardened" facilities to meet the challenge of "softened" flexibility?

For years the educator and the architect have lived in essentially different worlds. Each camp has been immersed in its own milieu of jargon, philosophy, and frames of reference. We now recognize that the two camps can no longer go their separate paths but must unite and regroup in order to provide a common front against the creeping complexity of our times, both present and future. How can we increase the pace of our efforts in bringing about greater mutuality of understanding between the educator and the architect in light of the mushrooming specialization and accumulating body of knowledge in each area? Where do we find people who are conversant in both areas? How can we provide for increased communication lines? How can teacher-education programs increase their efficiency with respect to educating the educators who inevitably bear the brunt of utilizing spaces to maximum advantage?

Harold Gores of EFL has said that obsolete schools are being built today not because of lack of invention but rather because of lack of innovation at the district level. He indicated that the public - the man in the street who fundamentally determines the kind of education that the community gets (and consequently deserves) is all for progress but not for change. What can education do to speed up innovation at the grass-roots level? Dynamic innovation is occurring at the academic, technological, and theoretical levels. Great innovation is taking place at scattered pockets of activity throughout the country. But the rank and file of grass-roots activities are still guided by the dead hand of tradition. What can we do to assist the school board and teachers of Toadhop, Indiana, and their figurative counterparts throughout the country to implement innovation and bring about long-needed change in the structure of their education.

(Concerns - Blank - continued)

The puritan ethic of conservative cost-consciousness has long hamstrung the quality of educational facilities. How can educators convince the public that quality education cannot be bought at bargain basement prices?

Learning spaces represent a massive capital investment. How do we justify this investment? What research can we cite to point up the fundamental relationships existing between learning and the space within which learning occurs?

How can we inject a centralization of standards of quality control into educational facilities in the midst of the diversity of decentralization and local requirements that characterizes education in America?

How can we avoid the tendency for non-conventional new facilities to be used in conventional fashion? The sheer existence of avant garde facilities in no way guarantees avant garde instruction. What can we do about providing for effective use of new facilities?

How do we justify major funding of new facilities with existing technology in light of unforeseen technological break-throughs that may drastically alter cost structure in the future?

27. Robert Browning

What about some long-range research projects, concerned not with answering an immediate and specific question, but something relative to greater depth and larger scope?

What ever became of the carpeted classroom? I have yet to see one. If it's good enough for the administrator level in colleges, business and industry, why not for the production end of our profession?

How can we make a better P. R. approach to the voter so that he in turn will finance our private dreams relative to the subject at hand. Let's have EDL publication, "How to succeed in bond elections after really trying."

Now that the parking lot has replaced the bicycle rack, at the high school as well as the college level, how can we better utilize the area taken over by the blacktop? What about a school in the midst of a park setting with underground storage for the automobile?

Why not a major network TV series related to our topic financed by the "Fund" or "Ford" or perhaps even a commercial venture by one of the prestige sponsors. It would cost a million dollars but wouldn't that be better than a hundred different research studies all reporting "No significant difference"?

We are continually faced by obsolescence, in both equipment and materials. It sometimes seems that this obsolescence is built in as it might be with a washing machine or an annual blossom. Should we not work more closely with

(Concerns - Browning - continued)

the producer, establishing standards and then living by them? Otherwise, much of our learning space will be devoted to dead storage.

How can we bring more materials to more people with more flexibility utilizing less funds, less time, and less trouble?

Of even greater importance, how can we bring to the student at the most opportune moment, all of the experience that he needs. "He", above refers of course to each of the millions of students and their own personal needs.

28. Chester Sutton

How may the stage be set for instructional programs in a system where changes in methods of approach and presentation to learning are reluctant?

What are teacher training institutions doing to train people how to use teaching machines and other programed media?

How effective is programed teaching nationwide? Is learning taking place?

Are we satisfied with the theories and standards of today's programed instruction?

How far can programed instruction go in stretching limits within any subject that is teachable, or speeding up the learning process beyond what has usually been taken as average progress?

Which is more conducive to programed learning, self-contained classrooms or classrooms with a departmental set-up?

29. Leo Rosenthal

Other than the folding door, what new innovations have proved successful to enlarge classroom space for more than one class?

Have any studies been completed as to the efficiency of individual study stations (listening: either record or tape) versus the portable multi-listening unit?

What conclusions and recommendations can be made regarding individual portable overhead projectors in each K-6 room?

Use of the school library as a school Instructional Materials Center:

a. How far should schools depart from using a centralized Instructional Materials Center (entire school system) in planning individual school activities?
b. Have schools been successful in this type of activity without the full-time presence of a librarian?

(Concerns - continued)

30. W. L. Veenendaal

Should we mass-design learning space, thus forcing school administration to conform to preconceived and prestructured teaching techniques?

I would like to debate the merits of one central learning core-space versus function modules which might be combined in different ways.

We are not using the mass production know-how of the auto industry or the plumbing and kitchen equipment manufacturer to provide better learning spaces and hardware.

Are we basing the space, equipment and function in all of our advanced planning for the use of the newer media upon sound learning theory?

31. Hal Riehle

Florida Atlantic University will open on September 8 for approximately 2,000 students. Initially, the University will have but one building which can be described as a classroom building. This is a two-story 3-sectioned building with an area of 43,000 square feet. This center is designed to provide facilities for large group instruction, medium sized classes, small group discussion and individual learning.

Initially, some 70 independent study stations will be located in the library building on the second, third, and fourth floors. A student may sit in a semi-private learning space and have immediate access to televised programs complete with sound. These programs emanate from the television building on campus or even remotely from other areas of the University, or they may be programs taken from the area commercial or educational television broadcasts.

The student may select the televison program of his choice by dialing a number. In addition to the video selection, the student also has equal access to approximately 190 predetermined audio programs. It can be understood then that initially the student and faculty alike will have access to a large variety of instructional spaces ranging from the individual language laboratory type booth to the large classroom situation accommodating approximately 100 students. Display systems for all areas include closed-circuit television, closed-circuit audio accessible by dial. Although operable doors are very much in evidence for the purpose of changing the classroom size, it is still apparent that the average size of a classroom will be approximately 450 square feet accommodating approximately 25 students.

As mentioned previously, initially 2,000 students will utilize the above space facilities; however, it is the intention of the University to accommodate an additional 3,000 students for the second year of operation with no additional physical facilities. Thus, it is apparent that a space utilization problem will probably exist for the second year and the logistics of use become a most important concern for the learning laboratories personnel.

(Concerns - continued)

32. A. R. Cowdery
    A. Learning space design
        1. Flexibility
            a. Changes in educational philosophy
            b. Changes in educational media
            c. Changes in group size and teaching methods
        2. New building
            a. Elementary
            b. Middle school
            c. High school
        3. Established buildings
            a. Elementary
            b. Middle school
            c. High School
    B. Relationship of learning space to learning theory and learning media
    C. Orientation of staff to accept educational innovation in learning spaces and educational media

33. Richard Gilkey

It is too simple to merely excuse the impediments to effective utilization of educational media by cliche', "We shape our buildings and our buildings shape our programs." What is required is a massive approach to the physical problems that prevent teachers from making adequate use of instructional media. Large expenditures are made for materials and equipment, but only minimum amounts are spent on facilities to maximize the use of the newer instructional techniques. What is worse, new construction often continues older patterns of school construction.

No purpose is served by cataloging a list of "horrors" occurring in many new construction projects - these weaknesses are only too well known by those active in a-v communications. What must be done is not to cite errors, make lists of needed facilities, but to plan specific stratagems of a campaign that will eliminate the current inertia and stage a breakthrough in achieving those facilities we already know are essential and prepare to adopt those procedures that are coming in the near future.

The campaign would need to be based upon not the implementation of new procedures, but the achievement of specific educational purposes and objectives. These educational resultants must be shown to be best achieved through these newer educational procedures.

A campaign based upon educational outcomes will place the emphasis on children not upon media, hardware, buildings and administrative organization. It will also avoid an orientation towards a "Hawthorne Effect" or change for the sake of change.

This concern for achievement of objectives is paramount; since until we can establish a climate of educational development that puts objectives first we cannot hope to really creatively approach solutions to our problems. We must then learn how we can map out the kind of "planned change" that will be truly flexible for today's and tomorrow's curriculum. These techniques of creating an acceptable environment for optimum use of the newer media must be made to apply to both new construction and redesigning older structures.

34. Stanley McIntosh

On the one hand I can frankly say that the best facilities and methods for the future should be those which I can't possibly now imagine except through a somewhat trite axiom "That educational facilities reflect the type (of thinking) of people who provide them."

I don't know whether Francis Keppel said the following before or after he was appointed Commissioner of Education but he said it, and it concerns us all:

"Education must make good on the concept that no child within our society is either unteachable or unreachable - that whenever a child appears at the doors of our schools he presents a direct challenge to us and to all our abilities... For educators, the question is not the environment that children bring to the school from the outside, but the environment the school provides from the inside."

As for me, I've always gone for photo-electric cells at all classroom doors. To date we've just gotten them on the supermarkets.

35. William C. Prigge

What is being done or what can be done concerning the types of materials being used in school construction? Aren't there materials available which will allow us to build buildings to last for only 15 or 20 years and then be replaced with a facility to meet the demands of population and technology?

What types and amounts of space are needed to operate an audiovisual service program and an audiovisual training program at a university?

36. James W. Brown

What, particularly, are recommended and achievable courses of action for modernizing the 20- to 50-year old buildings, both elementary and secondary, to bring them up to par for the utilization of new educational media?

What are the latest recommended (and defensible) standards for: (a) combined instructional materials centers; (b) separate library and audiovisual centers--for elementary, secondary, and college levels?

(Concerns - continued)

37. Thomas E. Miller

First, I am well aware that learning space includes that space intended not only for group instruction but also (since "individuals" learn, not groups) that space, wherever it may be, where individual students somehow manage to "run into" learning situations. In other words, I feel that individual learning space should be a major concern in our discussions.

Another concern for me is the revision of a wide variety of learning space, from individual lab space to auditoria, which we find obsolete on a big university campus like ours here. How can we systematically revise this space to meet tomorrow's needs? And again, how can we be sure that all future new learning space will be planned for those needs?

38. Glenn Daniels

My concerns regarding learning space are probably three fold, and I would think that we might want to think of learning space and the new media in a way that it would facilitate (1) Independent Study - in other words, how can the student learn largely by himself. I have a feeling that much of our education is a conventional lecture later monitored back on a test. This seems to me to destroy any initiative or creativeness on the part of the student. I've observed that many times the student who has some initiative and disagrees or expresses an opinion is dubbed as the trouble maker in the classroom. Maybe this is why some of recent research has found no correlation between grades in school and success in later life. (2) Students are students and thus there is going to have to be some learning from the explanations of others. We have to take advantage of the experience of others. (3) What facilities can we bring together for personal interaction between the teacher and the students or individual instruction?

39. Mendel Sherman

What should be the basis for decisions made in planning buildings? Research? Experience and opinion of architects augmented by specialists, etc.? How are decisions reached regarding learning space and its arrangement, size, shape, length of ceiling, etc., etc.?

What is the ideal team to determine the learning spaces for the school? How can such teams be assured or mandated?

Very often, the school is designed and then the curriculum determined--even some of the modern ones which boast that the building space conforms with the curriculum have had the dimensions and shape of the school fairly well fixed before the educational planning of both completely integrated and if so, how can this be assured?

What research is needed in the planning of learning space? What are some approaches to identifying problems and what is a workable plan to get under way?

(Concerns - Sherman - continued)

We cannot see into the future very far but we know flexibility must be a feature--what are the flexible elements in a school? How can we achieve maximum flexibility?

We should accept the fact that no matter how flexible, almost every school building that will be planned will be so obsolete in 25-40 years that it should be replaced. Can we somehow arrange for the building to automatically collapse (preferably at night when everyone is gone) when obsolescence is sufficiently advanced?

40. Robert Brunson

Background: The 1963 conference concerned itself with learning theory. The 1964 conference is to concern itself with learning space and media as implementation of learning patterns and empirization of learning theory.

The concern: How are leaders developed with competencies for articulating philosophy into belief, belief into policy, and policy into implementations?

Background: Words are symbols for concepts. The meanings of words are their conceptual content. Out of these symbols we construct languages and by attaching concepts to symbols languages evolve.

The concern: (a) What are some of the outstanding symbiotics of classic architecture that become functional in educational architecture? (b) Do changes in materials result in changes in fundamental principles of architecture, or do they merely present new processes for solving old problems?

Background: An article in a recent issue of the Phi Delta Kappa magazine indicated that educational practicum seems to swing from liberal to conservative at a frequency of every twenty years. These cycles bring about a necessity for flexibility in learning space and learning media.

The concern: How are architects and builders as well as educators planning learning space and media to meet evolving educational practices?

Background: As a totally blind worker in the field of instructional materials, I am personally as well as professionally interested in educational media which does not require sight. In addition to my responsibilities as consultant in educational recordings, I am asked to do some counseling with blind students entering public schools; hence my interest in this area. Two maximum problems of importance in this area of habilitation and rehabilitation are communication and mobility.

The concern: (a) What are some of the parallel communication problems in the education of the blind and those of educating the sighted?

(Concerns - Brunson - continued)

(b) The flow and movement of students is one of the problems pointed up in the literature of educational architecture. What parallel can be drawn between the mobility of the sighted and that of the blind student in public school plants?

41. Arthur Lalime

In what phases of our economy, public or private, does the building program and building design make provision for the anticipated needs of the next 10-25 or 50 years.

Do educators in key posts recognize the shape and needs of education in the future? What do they see as the needs for education in the next 25 years?

How soon will major segments of the country rely on automation and technology to reduce some of the costs of education?

Does team teaching or some form of cooperative teaching with teacher aides, learning centers, self study, large group instruction as outlined by Lloyd Trump appear to be accepted as a major influence in school design?

If the Trump Plan, or Lexington Plan, or Norwalk Plan of team teaching are to be properly implemented, present school design must be modified to meet the needs of this reorganized pattern of teaching. Our present buildings "get in the way of the teacher and the student."

If DAVI is to be influential in helping to shape the design of the school building to accommodate the services and technology it is committed to promote, where does DAVI begin - (a) with its own members? (b) with national and local organizations of architects? (c) with related NEA organizations?

Should DAVI set up an annual school design award similar to the intent but not the scope of AASA awards to give national recognition to the school architects who have made outstanding contributions to school design as judged by DAVI or its selected committee of judges?

Should DAVI do some follow-up studies on Educational Facilities Laboratory "Reports of Significant Schools" to help determine if: (a) the ideas outlined in a particular report are effective, or (b) the significant innovation reported on has achieved the desired result without reducing the effectiveness of the rest of the school program?

If the EFL reports are significant to the promotion of instructional practice DAVI should do something to help EFL gain an acceptance of its design proposals.

42. Ira J. Singer

Is there any evidence measuring the effect of study carrel usage on student learning (achievement, study habits, etc.)?

(Concerns - Singer - continued)

Is there any evidence demonstrating one type of carrel design as being superior to others?

Current facilities for independent study, large group instruction and small group discussion are not compatible with the self contained classroom. Why then do advocates of (non-commercial) programmed learning, overhead and rear screen projection, ignore school schedule, staff utilization and general school organization when promoting their interests?

When will teacher training programs combine curriculum content, instructional methodology, and technology into a unified program?

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